```
rocessing
Completed processing all files
          31081  GUM
        7605142  PLANT?
           3548  GALACTOMANNAN?
      S1    229  GUM AND PLANT? AND GALACTOMANNAN?
? rd

>>>Duplicate detection is not supported for File 306.

>>>Records from unsupported files will be retained in the RD set.
...examined 50 records  (50)
...examined 50 records  (100)
...examined 50 records  (150)
...examined 50 records  (200)
...completed examining records
      S2     174  RD (unique items)
? s s1 and py<1999

<------User Break------>
u!
? s s2 and py<1999

>>>File 10 processing for PY=  : PY=1999
>>>    started at PY=A stopped at PY=1962
Processing
Processing
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>>>  or undefined in one or more files.
Processing
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             174  S2
        61537311  PY<1999
      S3     134  S2 AND PY<1999
? t s3/3,ab/all

>>>No matching display code(s) found in file(s): 65, 306

 3/3,AB/1      (Item 1 from file: 5)
DIALOG(R)File   5:Biosis Previews(R)
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12007524   BIOSIS NO.: 199900288043
Synergistic interaction between kappa-carrageenan isolated from Hypnea
  charoides LAMOUROUX and galactomannan on its gelation.
AUTHOR: Tako Masakuni(a); Qi Zhi-Qing; Yoza Eriko; Toyama Seizen
AUTHOR ADDRESS: (a)Department of Bioscience and Biotechnology, University
  of the Ryukyus, Nishihara, Okinawa, 903-0**Japan
JOURNAL: Food Research International  31 (8):p543-548 1998
ISSN: 0963-9969
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English
SUMMARY LANGUAGE: English

ABSTRACT: The synergistic effects on rheological properties for a series of
  aqueous solution of kappa-carrageenan isolated from Hypnea charoides
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LAMOUROUX and **galactomannan** (locust-bean **gum**) were investigated. At a co[redacted]ntration of 0.4% of total gums [redacted]elation did not occur at room temperature, but it did at a low temperature (0degreeC). The maximum dynamic modulus was obtained with a series of the samples composed of K-salt of kappa-carrageenan and locust-bean **gum** in the mixing ratio of 1:1 at low temperature (0degreeC). The less synergistic effect on the dynamic modulus was obtained in mixture solutions with Na-salt of kappa-carrageenan and locust-bean **gum**. At about 25degreeC, gel-sol transition was observed in the mixing ratio of kappa-carrageenan (K-salt) to locust-bean **gum** of 3:1 and 4:1. A possible association site between K-salt of kappa-carrageenan and locust-bean **gum** was proposed.

1998

3/3,AB/2 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11306617 BIOSIS NO.: 199800087949
Synergistic gelatin of xanthan **gum** with locust bean **gum**: A rheological investigation.
AUTHOR: Copetti Giuliano; Grassi Mario; Lapasin Romano; Pricl Sabrina(a)
AUTHOR ADDRESS: (a)Dep. Chem., Environmental Raw Materials Engineering - DICAMP, Univ. Triese, Piazzale Europa 1, I**Italy
JOURNAL: Glycoconjugate Journal 14 (8):p951-961 Dec., **1997**
ISSN: 0282-0080
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Many industrial products often include in their formulation more than one polysaccharide to achieve the desired properties during and after processing. Many such mixed systems behave as would be expected from the known properties of the individual polymers. In others, however, their properties are superior to those of either component alone, or may be qualitatively different. In many polysaccharide systems, the combination of a gelling polymer with a nongelling one gives rise to strong synergistic effects, as a consequence of interaction among different chain polymers and formation of mixed junction zones. Probably, the most exploited mixed gels, especially by the food industry, are those involving the microbial polysaccharide xanthan **gum** (XG) and the **plant galactomannans**, like locust bean **gum** (LBG).
Concentrated aqueous systems of LBG and XG display quite different rheological properties: the former show the behaviour typical of hyperentangled macromolecular solutions, whereas the flow and viscoelastic properties of XG systems correspond to those of tenuous, weak-gel networks. interestingly, when mixed together these macromolecules interact to form a firm, thermoreversible gel with synergistic effects. In the present paper we report the results of a thorough investigation of both polymer concentration and temperature effects on the rheological properties of mixed LBG-XG systems in 20 mM KCl under continuous and oscillatory flow conditions. Under continuous shear at 25 degreeC, pure LBG shows the flow properties of a macromolecular solution, with a shear-thinning behaviour and a Newtonian region at low shear rates, whereas the rheological behaviour of XG and all LX mixed systems is that typical of weak-gels. Furthermore, in the mixed systems the viscosity values do not increase monotonically with increasing xanthan concentration, but the synergistic effect has a maximum in accordance with the XG: LBG ratio 1:1. As the temperature is increased from 25degreeC to 85degreeC, whilst the LBG system do not show any qualitative change but there is only a parallel, downward shift of viscosity values, in the case of xanthan there is a dramatic change in the corresponding curve profiles, due to the thermally induced helix-coil

conformational transition. The differences in the rheological behaviour of the systems examined can be better shown through dynamic tests at 25degreeC. The strain sweeps performed at constant frequency of oscillation reveal that the mixed systems show higher sensitivity to strain amplitude, and lower strain values must be attained to ensure linear viscoelastic properties. The mechanical spectra clearly show the influence of composition on the viscoelastic properties of these blopolymer systems. All LX systems show the mechanical spectra typical of polysaccharide gels: G' is always much greater than G" and is nearly independent of the applied frequency over a wide frequency range. In addition, the marked gap between the elastic responses of the pure LBG and the LX 1:3 systems demonstrates the strong effect of the initial addition of xanthan to the pure LBG, especially in the low frequency range, whereas the highest synergistic effect is attained for the LX 1:1 system. A comprehensive description of the frequency dependence of both moduli can be suitably obtained through the fourparameter Friedrich model, which belongs to the class of fractional derivative approaches viscoelastlcity. The same thermal effect is observed for the XG and all LX mixed systems considered, indicating a progressive change from the behaviour of a typical gel to that of a quasi-solution state, when temperature is increased from 25degreeC to 85degreeC. Among all mixed systems, the LX 1:1 has the highest values of the moduli at any temperature considered, and is characterized by the highest gel-sol transition temperature. in all LX systems, the temperature sweeps show that the gel-sol transition follows a two-step process, characterized by the presence of two inflection points in the relevant G* vs T curves. The first stop could be reasonably ascribed to the melting process of the mixed xanthan-locust bean **gum** junction zones, in which the association of XG with LBG is occurring with the xanthan component in its fully ordered helical conformation. The second step, occurring at higher temperature, can be attributed to the conformational transition of the xanthan chains. All the experimental results from this study seem to suggest the coexistence, within the structure of these mixed gels, of both heterotypic LBG-XG and homotypic XG-XG junction zones, in which the xanthan chains retain their ordered helical conformation, thus supporting the original model proposed by Dea and Morris.

1997

3/3,AB/3 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11290410 BIOSIS NO.: 199800071742
A neutral seed **gum** from Abutilon indicum.
AUTHOR: Singh Vandana; Mishra Umesh Chandra; Khare Girish C; Gupta Purna C
AUTHOR ADDRESS: Dep. Chem., Univ. Allahabad, Allahabad 211 002**India
JOURNAL: Carbohydrate Polymers 33 (2):p203-205 **1997**
ISSN: 0144-8617
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A water soluble **galactomannan** has been isolated from the seeds of Abutilon indicum containing D-galactose and D-mannose in 2:3 molar ratio. Acid catalysed fragmentation, periodate oxidation and methylation showed that the seed-**gum** has branched structure consisting of linear chain beta-D(1fwdarw4) linked mannopyranosyl units, some of which are substituted at O-6 by two alpha-D(1fwdarw6) galactopyranosyl units mutually linked glycosidically as end groups.

1997

3/3,AB/4 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

11084875 BIOSIS NO.: 199799706020
A prediction of the compressive deformabilities of multilayered gels and texturized fruit, glued together by three different adhesion techniques.
AUTHOR: Ben-Zion O; Nussinovitch A(a)
AUTHOR ADDRESS: (a)Hebrew Univ. Jerusalem, Inst. Biochem. Food Sci. Nutrition, Fac. Agriculture, PO Box 12, Rehovot**Israel
JOURNAL: Food Hydrocolloids 11 (3):p253-260 **1997**
ISSN: 0268-005X
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The compressive force-deformation relationships of multilayered hydrocolloid gels composed of different combinations of agar, four **galactomannans**, xanthan, carrageenan and konjak mannan, and of gelled texturized fruits (based on banana, apple, kiwi and strawberry pulps and agar-LBG combinations), adhered via three different gluing techniques, were calculated from those of the individual layers. The gluing techniques consisted of: pouring hot hydrocolloid solution on a gelled layer, using melted agar as a glue between already gelled layers, or simultaneously pouring pre-gelled (**gum** solution before setting) hydrocolloid solutions. Two assumptions were made: that the normal force in the layers is the same, and that the deformations are additive. The effects of lateral stresses were considered negligible. The calculation was performed using a mathematical model previously developed for double-layered curdlan gels. The model constants were determined from the behavior of the individual layers. Good agreement was found between experimental and fitted results over a considerable range of strains. Thus the model's applicability to a given gel system was demonstrated, suggesting a very convenient tool to analyze and predict the compressive behavior of any number of arrays with different layer combinations.

1997

3/3,AB/5 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10943413 BIOSIS NO.: 199799564558
Fenugreek **galactomannans** as food emulsifiers.
AUTHOR: Garti N(a); Madar Z; Aserin A(a); Sternheim B(a)
AUTHOR ADDRESS: (a)Casali Inst. Applied Chem., Hebrew Univ. Jerusalem, Jerusalem 91904**Israel
JOURNAL: Lebensmittel-Wissenschaft & Technologie 30 (3):p305-311
1997
ISSN: 0023-6438
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Fenugreek **gum** was extracted from fenugreek seeds and evaluated for its surface activity. This unique **galactomannan** has a mannose backbone grafted with galactose units at an average ratio of one. The purified fenugreek **gum** was found to reduce surface tension to values lower than guar **gum** (42 and 55 mN/m, respectively). The interfacial activity was surprisingly better than other **galactomannans** (interfacial tension was reduced to 2 mN/m in vegetable oils) which led to the formation of oil-in-water emulsions with small droplet size (2-3 mu-m) and long-term stability. The fenugreek **gum** was found to adsorb (or 'precipitate) on the oil interface forming a relatively thick interfacial film. The emulsions are more stable than any equivalent emulsions stabilized by other

galactomannan gums. No flocculation was observed in emulsions stabilized with fenugreek concentrations sufficient for good coverage of the oil interface as expressed by the coverage index (Rc) correlated to the **gum**/oil weight ratio (Rc gt 12).

1997

3/3,AB/6 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10638024 BIOSIS NO.: 199699259169
Effects of guar **galactomannan** on wheat bread microstructure and on the in vitro and in vivo digestibility of starch in bread.
AUTHOR: Brennan C S; Blake D E; Ellis P R(a); Schofield J D
AUTHOR ADDRESS: (a)King's College London, Div. Life Sci., Biopolymers Group, Campden Hill Rd., London W8 7AH**UK
JOURNAL: Journal of Cereal Science 24 (2):p151-160 **1996**
ISSN: 0733-5210
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Microscopy and in vitro digestibility methods were used to obtain information about the putative inhibitory effect of guar **gum**, an endospermic seed extract, on the rate of digestion of wheat bread starch. Guar seed endosperm was examined by bright field microscopy after staining with toluidine blue or ruthenium red, by epifluorescence microscopy after labelling with two fluorescein-labelled lectins specific for alpha-D-galactose and D-mannose residues, respectively, and by scanning electron microscopy (SEM). These methods showed that guar **galactomannan**, the main component of guar **gum**, was located both within the **plant** cell walls and as amorphous deposits within the cell vacuole. SEM examination showed that the latter persisted in the milled guar flour. Examination of wheat bread containing guar **gum** by SEM and by fluorescence microscopy using the labelled lectins revealed that the starch granules and surrounding bread matrix were coated with a layer of **galactomannan** mucilage. After guar bread was ingested by pigs, the close association of **galactomannan** with the wheat starch persisted during the early post-prandial period (0-90 min), but this was greatly reduced at later post-prandial times (gtoreq 180 min). The in vitro hydrolysis of starch in guar bread was found to be attenuated significantly compared with normal wheat bread. The results are consistent, therefore, with the concept that guar **galactomannan** acts as a physical 'barrier' to alpha-amylase-starch interactions and/or subsequent release of hydrolysed products (e.g. maltose). Such a process, in addition to the effect of guar **gum** on digesta viscosity, may be significant in reducing the rise in post-prandial glycaemia caused by guar **gum** in humans.

1996

3/3,AB/7 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10464848 BIOSIS NO.: 199699085993
Rheological properties of a seed **galactomannan** from Cassia siamea Lamk.
AUTHOR: Kapoor Virendra P(a); Milas Michel; Taravel Francois R; Rinaudo Marguerite
AUTHOR ADDRESS: (a)Natl. Botanical Res. Inst., Rana Pratap Marg, Lucknow-226001**India

JOURNAL: Food Hydrocolloids 10 (2):p167-172 **1996**
ISSN: 0268-005X
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The rheological properties of a natural polysaccharide isolated from seed endosperms of Cassia siamea Lamk. have been studied for a wide range of concentrations from 2 times 10-4 to 5 times 10-2 g/ml. Results showed that the seed **gum** is a typical **galactomannan** having a mannose:galactose ratio of 2.55; mol. wt 8.4 times 10-5, and an intrinsic viscosity of 1166 ml/g. Viscosity observations regarding dependence of flow curves versus shear rate, viscoelastic and critical shear rate behaviour clearly reveal the characteristics of a random coil polymer. The value of the critical concentration Cc* = 2.2/(eta) is similar to the values obtained for some other **galactomannans** and polysaccharides although it is comparatively higher than the value obtained for more rigid polysaccharides. The slope of the log-log plot of specific viscosity versus C at zero shear rate is 4.34 in the concentrated region. This large dependence of the viscosity on the coil overlap parameter is lower than that found for guar with higher mannose proportion. The rheological behaviour of the **galactomannan** at concentrations higher than 15 g/l is that of a weak gel-like (pseudo network).

1996

3/3,AB/8 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10424810 BIOSIS NO.: 199699045955
Evaluation of subabul (Leucaena leucocephala) seed meal as a source of protein in broiler feed.
AUTHOR: Shejav P A; Prasad D
AUTHOR ADDRESS: Dep. Animal Nutrition, CCS Haryana Agricultural Univ., Hisar 125 004**India
JOURNAL: Indian Journal of Poultry Science 30 (3):p213-217 **1995**
ISSN: 0019-5529
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Leucaena seeds were analysed for their nutrient and toxic principles. Seed or ground meal (LSM) was treated either by 24 hr water soaking (WLSM), 25 g ferric sulphate/kg meal (FLSM) or 25 g ferric sulphate/kg plus 100 ml polyethyl glycol (FPLSM). Five broiler rations were formulated with raw and treated seed meal at 25% level, replacing groundnut cake from the control ration, and fed to 300 broiler chicks during the 6-week feeding experiment. Chemically Leucaena seed meal compared well with groundnut cake and had 32.3% crude protein, 12.7% crude fibre and 44.7% nitrogen-free-extract. But it had 14.2% mimosine, 0.8% tannins and 24.6% **galactomannan** guma. None of the treatment reduced the mimosine, tannin or **gum** contents to any significant level. Inclusion of raw and treated LSM in the rations decreased significantly (P lt 0.05) weight gain and feed efficiency. Some improvement with FLSM and FPLSM was noticed in respect of chicks mortality (7.5%), which was higher (23%) with LSM and WLSM. Mimosine excretion was increased due to ferric sulphate and tannin excretion due to polyethyl glycol treatment. The nitrogen and energy retention was reduced due to all types of LSM feeding. Apparent metabolizable energy (AME) content in seed meal was 780 kcal/kg. Leucaena seed meal was found to be unsuitable for inclusion into broiler feed.

1995

3/3,AB/9 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10287784 BIOSIS NO.: 199698742702
Starch-**galactomannan** interactions: Functionality and rheological aspects.
AUTHOR: Sudhakar V(a); Singhal R S; Kulkarni P R
AUTHOR ADDRESS: (a)Food Fermentation Technol. Div., Univ. Dep. Chem. Technol., Matunga, BomBay-400 019**India
JOURNAL: Food Chemistry 55 (3):p259-264 **1996**
ISSN: 0308-8146
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Incorporation of hydrocolloids into starch pastes modifies the rheological properties and also causes a synergistic increase in viscosity. These have been utilized in stabilizing products such as industrial dairy desserts and puddings. In the present work, an attempt has been made to study the interaction of corn starch and the less-explored waxy Amaranthus paniculatas starch at 5% w/v with the widely used **galactomannans**, namely guar **gum** and locust bean **gum**, in the concentration range 0-0.2% w/v, with respect to changes in paste viscosity and the gelatinization temperature, when heated in a Brabender amylograph. Some functional properties (e.g. freeze-thaw stability and stability under canning conditions) were also studied.

1996

3/3,AB/10 (Item 10 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10176525 BIOSIS NO.: 199698631443
Production of secreted guar alpha-galactosidase by Lactococcus lactis.
AUTHOR: Leenhouts K J; Bolhuis A; Ledeboer A; Venema G(a); Kok J
AUTHOR ADDRESS: (a)Groningen Biomolecular Sci., Biotechnol. Inst., Dep. Genetics, University Groningen, Kerklaan 30**Netherlands
JOURNAL: Applied Microbiology and Biotechnology 44 (1-2):p75-80 **1995**
ISSN: 0175-7598
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A **plant** alpha-galactosidase gene was inserted in the expression vector pGKV259. The resulting plasmid pGAL2 consisted of the replication functions of the broad-host-range lactococcal plasmid pWV01, the lactococcal promoter P59, and the DNA sequences encoding the alpha-amylase signal sequence from Bacillus amyloliquefaciens and the mature part of the alpha-galactosidase from Cyamopsis tetragonoloba (guar). Lactococcus cells of strain MG1363 harboring this vector produced the **plant** alpha-galactosidase and secreted the enzyme efficiently as judged by Western blotting and activity assays. Expression levels of up to 4.3 mg extracellular alpha-galactosidase g (dry weight) of biomass-1 were achieved in standard laboratory batch cultures. The alpha-galactosidase produced by Lactococcus was active on the chromogenic substrate 5-bromo-4-chloro-3-indolyl alpha-D-galactopyranoside, the trisaccharide raffinose and on the **galactomannan** substrate. guar **gum**.

1995

3/3,AB/11 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10144705 BIOSIS NO.: 199698599623
Studies on isolation, carbohydrate make-up and rheological properties of **galactomannan** of sesbania (Sesbania aculeata Poir.) seeds.
AUTHOR: Wankhede D B(a); Sawate A R; Patil H B; Ismail S; Deshpande H W; Hashmi S H
AUTHOR ADDRESS: (a)Carbohydrate Res. Lab., Fac. Food Sci. Technol., Marathwada Agric. Univ., Parbhani-431 402**India
JOURNAL: Starch 47 (11):p415-420 **1995**
ISSN: 0038-9056
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English
SUMMARY LANGUAGE: English; German

ABSTRACT: Isolation, carbohydrate make-up and theological characteristics of **galactomannan** of the sesbania seeds have been investigated. The **galactomannan gum** yield was 36.5+-1.5%, on whole seed basis. The **galactomannan** had (a)D-30+46.5 degree , on acid hydrolysis yielded galactose and mannose in the proportion of 1.2:2.2. Rheological properties of aqueous solutions of the **galactomannan** were investigated over a wide range of shear rates. The power law model, T=KD-n, was employed to describe flow behaviour of the **galactomannan**. The magnitude of flow behaviour index 'n' values lower than 1.0, and found to decrease as the concentration increased, indicating pseudoplastic flow. Similarly, consistency index (K) values were increased with increased concentrations of **galactomannan**. Thus, the **galactomannan** exhibited good thickening capacity.

1995

3/3,AB/12 (Item 12 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

10038558 BIOSIS NO.: 199598493476
Synergistic interactions between yellow mustard polysaccharides and **galactomannans.**
AUTHOR: Cui W(a); Eskin N A M; Biliaderis C G; Mazza G
AUTHOR ADDRESS: (a)Dep. Food Sci., Univ. Manitoba, Winnipeg, MB R3T 2N2** Canada
JOURNAL: Carbohydrate Polymers 27 (2):p123-127 **1995**
ISSN: 0144-8617
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Small strain oscillatory theological tests were carried out to study the synergistic interactions between yellow mustard mucilage and locust bean **gum**. Synergistic interactions were observed for blends of locust bean **gum** and yellow mustard mucilage ranging in ratios from 1:1 to 1:9 at total polymer concentrations of 0.5 and 2.0% (w/w), respectively. The theological data indicated that the water-soluble fraction of yellow mustard mucilage was responsible for the observed synergistic behavior in the blends. The major component of the water-soluble yellow mustard mucilage consists of a 1,4-linked beta-D-glucan backbone chain. This 1,4-linked beta-D-glucan backbone chain is believed to adopt a rigid-ordered structure that may be responsible for the synergistic interaction with **galactomannans**.

1995

3/3,AB/13 (Item 13 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09975185 BIOSIS NO.: 199598430103
1H- and 13C-NMR characterization of the digalactosylmannopentaose liberated from legume seed **galactomannan** by beta-mannanase action.
AUTHOR: Davis Adrienne L; Hoffmann Rainer A(a); Russell Alison L; Debet Martine
AUTHOR ADDRESS: (a)Unilever Res., Colworth House, Sharnbrook, Bedford MK44 1LQ**UK
JOURNAL: Carbohydrate Research 271 (1):p43-54 **1995**
ISSN: 0008-6215
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Incubation of Locust bean **gum** with an Aspergillus niger beta-D-mannanase released a wide variety of **galactomannan** oligomers. A single heptasaccharide, digalactosylmannopentaose, was obtained from fractionation of the mixture by size exclusion chromatography. The purity and chemical composition of the sample was demonstrated using mass spectrometry, high performance anion-exchange chromatography and monosaccharide composition analysis. The primary structure of this heptasaccharide was unambiguously identified using 2D 1H and 13C homonuclear and heteronuclear NMR. A complete assignment of the 1H and 13C signals of this oligomer was achieved, producing an NMR dataset that will be of importance in the primary structure elucidation of larger and more complex **galactomannan** oligomers.

1995

3/3,AB/14 (Item 14 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09774774 BIOSIS NO.: 199598229692
Rheological properties of mixed gels of kappa-carrageenan with **galactomannan**.
AUTHOR: Murayama Atsuko(a); Ichikawa Yoko(a); Kawabata Akiko
AUTHOR ADDRESS: (a)Kawamura Coll., Mejiro, Toshima-ku, Tokyo 171**Japan
JOURNAL: Bioscience Biotechnology and Biochemistry 59 (1):p5-10 **1995**
ISSN: 0916-8451
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The rheological properties of 1-1.5% kappa-carrageenan gels mixed with **galactomannan**, i.e., locust bean **gum**, tara **gum**, and guar **gum**, in ratios of 7:3 and 1:1 were investigated by measuring the temperature dependence and the courses of dynamic viscoelasticity and static viscoelasticity. The addition of small amounts of locust bean **gum** and tara **gum** to kappa-carrageenan changed the rheological properties of the original to a firmer and more elastic gel. Measurements of the storage modulus (G') and loss modulus (G'') showed that kappa-carrageenan formed the basic network structure of the gel, while locust bean **gum** and tara **gum** strengthened this network structure. kappa-Carrageenan showed a synergistic effect with locust bean **gum** and tara **gum**, but not with guar **gum**, which was caused by the difference of the constituent ratio of galactose

to mannose in the three gums. Significant differences in the network structures of mixed gels of kappa-carrageenan and the three gums were apparent by observing with a scanning electron microscope.

1995

3/3,AB/15 (Item 15 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09774300 BIOSIS NO.: 199598229218
The prospect on the utilization of **plant** resources for **galactomannan gum** in China.
AUTHOR: Xiao Zheng-Chun; Zhang Guang-Lun
AUTHOR ADDRESS: Inst. Comprehensive Util. Wild Plants, Minist. Commerce, Nanjing 210042**China
JOURNAL: Journal of Plant Resources and Environment 2 (4):p48-50 **1993**
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: Chinese; Non-English
SUMMARY LANGUAGE: Chinese; English

ABSTRACT: The process of **galactomannan gum** is a new industry which rose in the middle 1970s in China. This paper deals with the production situation of Cyanopsis tetragonoloba (L.) Taubert., Sesbama cannabina (Retz.) Pers., Trigonella foenum-graecum L. in China. It is believed that Trigonella foenum-graecum is of such advantages as strong adaptivity, high output, easily mechanized cultivation and rotation on large area, improving soil and with good economic efficiency as well. Therefore, to develop **galactomannan** resources in China, mass-cultivation for Trigonella foenum-graecumon is a good method.

1993

3/3,AB/16 (Item 16 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09661528 BIOSIS NO.: 199598116446
Rheological properties of seed **galactomannan** from Cassia nodosa buch.-hem.
AUTHOR: Kapoor Virendra P; Milas Michel(a); Taravel Francois R; Rinaudo Marquerite
AUTHOR ADDRESS: (a)Cent. Rech. Macromol. Veg., Affiliated Joseph Fourier Univ. Grenoble, B.P. 53 X, 38401 Grenoble **France
JOURNAL: Carbohydrate Polymers 25 (2):p79-84 **1994**
ISSN: 0144-8617
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The solution properties of the **galactomannan** polysaccharide isolated from the seed of Cassia nodosa have been determined for a wide range of concentrations. The **gum** used has a mannose-to-galactose ratio of about 3.5, hivin M-w = 7.01 times 10-5 and an intrinsic viscosity of 1210 ml/g. The transition from dilute to semi-dilute regime, determined from viscometry, occurs at a critical concentration C-c* apprx 2.5 +- 0.5/(eta) which is similar to the values obtained for some **galactomannans** and other polysaccharides although it is higher than the value obtained for more rigid polysaccharides. The slope of the log-log plot of specific viscosity versus C at zero shear rate is 6.5 in the more concentrated regime. These rheological studies clearly reveal

the characteristics of a coil in dilute solutions. However, the large dependence of the viscosity on the coil overlap parameter is probably due to interactions because of low galactose content. The concentrated domain is characterized for polymer concentrations higher than 15 g/l where the theological behaviour reached that of a pseudonetwork (weak gel-like behaviour).

1994

3/3,AB/17 (Item 17 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09265760 BIOSIS NO.: 199497274130
Rheological properties of mesquite seed **gum** in steady and dynamic shear.
AUTHOR: Yoo B(a); Figueiredo A A; Rao M A
AUTHOR ADDRESS: (a)Dep. Food Sci. Technol., Cornell Univ., Geneva, NY 14456 **USA
JOURNAL: Lebensmittel-Wissenschaft & Technologie 27 (2):p151-157
1994
ISSN: 0023-6438
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The steady and dynamic shear rheological properties of mesquite seed **gum** (MSG) solutions were measured at various concentrations (0.4-2.0 g/100 mL). The intrinsic viscosity was 240.5 mL/g. The Cross flow model provided a better fit on the shear rate-apparent viscosity data than the Carreau flow model. The coil overlap parameter, C(eta), correlated well with the zero-shear rate specific viscosities (eta-spo) The transition at the critical concentration (C*) occurred at a value of the coil overlap parameter C(eta) = 2.7 close to that observed for other **galactomannan** gums. Storage (G') and loss (G") moduli increased with increase in frequency (omega), while dynamic shear viscosity (eta-*) decreased. G" values showed elastic plateaus at high frequencies. The dynamic and steady-shear viscosities at several concentrations followed the empirical Cox-Merz rule.

1994

3/3,AB/18 (Item 18 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09199785 BIOSIS NO.: 199497208155
Viscoelastic properties of mixed polysaccharide systems.
BOOK TITLE: **Plant** polymeric carbohydrates
AUTHOR: Doublier J L; Castelain C; Lefebvre J
BOOK AUTHOR/EDITOR: Meuser F; Manners D J; Seibel W: Eds
AUTHOR ADDRESS: INRA-LPCM, BP 527, 44026 Nantes Cedex 03**France
p76-85 **1993**
BOOK PUBLISHER: Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge CB4 4WF, England
CONFERENCE/MEETING: International Symposium Berlin, Germany July 1-3, 1992
ISBN: 0-85186-645-X
RECORD TYPE: Citation
LANGUAGE: English
1993

3/3,AB/19 (Item 19 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

09076277 BIOSIS NO.: 199497084647
Influence of locust bean **gum** on the rheological properties of kappa-carrageenan systems in the vicinity of the gel point.
AUTHOR: Fernandes P B(a); Goncalves M P; Doublier J L
AUTHOR ADDRESS: (a)Nestle Res. Centre, Vers-chez-les Blanc, PO Box 44, CH-1000 Lausanne 26**Switzerland
JOURNAL: Carbohydrate Polymers 22 (2):p99-106 **1993**
ISSN: 0144-8617
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Viscosity and oscillatory shear measurements have been performed on kappa-carrageenan alone and on kappa-carrageenan/**galactomannan** (guar **gum** or locust bean **gum**) blends in the vicinity of the sol-gel transition. From these measurements, a phase diagram showing the boundary limits for kappa-carrageenan/locust bean **gum** and kappa-carrageenan/guar **gum** was established. The viscoelastic behaviour at the transition showed that this process was sharp for the kappa-carrageenan/locust bean **gum** blend, while for the kappa-carrageenan/guar **gum** blend, it was more progressive. The kappa-carrageenan content at which the transition took place was estimated and was found to be constant, whatever the total polymer concentration of the mixture studied. This phase transition results in a system whose theological properties are far removed from those of the original biopolymers. However, it is shown that kappa-carrageenan is primarily responsible for gel network formation.

1993

3/3,AB/20 (Item 20 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08904985 BIOSIS NO.: 199396056486
Induction of alpha-galactosidase in Penicillium ochrochloron by guar (Cyamopsis tetragonoloba) **gum**.
AUTHOR: Dey Prakash M(a); Patel Smita; Brownleader Michael D
AUTHOR ADDRESS: (a)Dep. Biochemistry, Royal Holloway Coll., Univ. London, Egham Hill, Egham, Surrey TW20 0EX**UK
JOURNAL: Biotechnology and Applied Biochemistry 17 (3):p361-371 **1993**
ISSN: 0885-4513
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: High yields of extracellular alpha-galactosidase from fungal cultures were obtained by inducing enzyme production with guar **gum** (a **galactomannan** obtained from the seeds of Cyamopsis tetragonobola) as the sole carbon source. An alpha-galactosidase was isolated from the culture medium of Penicillium ochrochloron culture and purified 867-fold by CM-cellulose and Sephacryl S-200 column chromatography to apparent homogeneity. Gel-filtration data revealed an M-r of 57 500, which was in close agreement with SDS/PAGE M-r estimation, for a single band, of 60 200. The alpha-galactosidase activity is strictly dependent upon the pH and temperature of the incubation medium, being maximal at pH 4.5 and 55 degree C respectively. This enzyme from P. ochrochloron was isolated and purified, devoid of beta-mannanase activity, which cleaves the main beta-mannan backbone of **galactomannans** and greatly diminishes its gel-promoting capacity.

The properties of purified guar-**gum** induced alpha-galactosidase activity in P. ochroc[redacted]ron culture were evaluated in [redacted]er to ascribe a possible application for alpha-galactosidase in the controlled generation of an improved guar-**gum**-based gel promoter.

1993

3/3,AB/21 (Item 21 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
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08881638 BIOSIS NO.: 199396033139
Conditions of formation, purification, and characterization of an alpha-galactosidase of Trichoderma reesei RUT C-30.
AUTHOR: Zeilinger Susanne; Kristufek Doris; Arisan-Atac Inci; Hodits Regina ; Kubicek Christian P(a)
AUTHOR ADDRESS: (a)Abt. Mikrobielle Biochemie, Institut Biochemische Technologie Mikrobiologie, Technische Universi**Austria
JOURNAL: Applied and Environmental Microbiology 59 (5):p1347-1353
1993
ISSN: 0099-2240
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Trichoderma reesei RUT C-30 formed an extracellular alpha-galactosidase when it was gorwn in a batch culture containing lactose or locust bean **gum** as a carbon source. Short-chain alpha-galactosides (melibiose, raffinose, stachyose), as well as the monosaccharides galactose, dulcitol, arabinose, and arabitol, also induced alpha-galactosidase activity both when they were used as carbon sources (at a concentration of 1%) in batch cultures and in resting mycelia (at concentrations in the millimolar range). The addition of 50 mM glucose did not affect the induction of alpha-galactosidase formation by galactose. alpha-Galactosidase from T. reesei RUT C-30 was purified to homogeneity from culture fluids of galactose-induced mycelia. The active enzyme was a 50 +- 3-kDa, nonglycosylated monomer which had an isoelectric point of 5.2. It was active against several alpha-galactosides (p-nitrophenyl-alpha-D-galactoside, melibiose, raffinose, and stachyose) and **galactomannan** (locust bean **gum**) and was inhibited by the product galactose. It released galactose from locust bean **gum** and exhibited synergism with T. reesei beta-mannanase. Its activity was optimal at pH 4, and it displayed broad pH stability (pH 4 to 8). Its temperature stability was moderate (60 min at 50 degree C resulted in recovery of 70% of activity), and its highest level of activity occurred at 60 degree C. Its action on **galactomannan** was increased by the presence of beta-mannanase.

1993

3/3,AB/22 (Item 22 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2001 BIOSIS. All rts. reserv.

08869128 BIOSIS NO.: 199396020629
Cassia fistula seed **galactomannan**: Potential binding agent for pharmaceutical formulation.
AUTHOR: Monif Tausif(a); Malhotra A K; Kapoor V P
AUTHOR ADDRESS: (a)Pharmaceuatical Div., Central Drug Res. Inst., Lucknow 226 001**India
JOURNAL: Indian Journal of Pharmaceutical Sciences 54 (6):p234-240
1992
ISSN: 0250-474X

DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The water soluble **gum** isolated from the seeds of Cassia fistula Linn. found in abundance throughout India, has been evaluated for its binding properties for formulations of tablets containing 2 and 4% of **gum**. The binding properties of **gum** has been evaluated in relation to the conventional binders like **Gum** arabic, **Gum** tragacanth, Sodium CMC and Gelatin at different parameters like percentage of fines, tablet hardness, disintegration time and friability. The **gum** showed overall superiority in viscosity and binding properties as compared to other binders. The addition of preservatives effectively checked the **gum**'s characteristic of losing viscosity on keeping. Like other binders, increase in concentration of **gum** from 2 to 4%, decrease the percentage fines (5.6 to 3.45), increase the hardness (kg/in-2) 5.11 +- 0.7270, C.V.14.22% to 5.98 +- 0.6863, C.V.11.47%) and disintegration time (30 min 29 sec to 36 min 44 sec). Percentage friability has been found to be almost equal (0.81 and 0.84) in Cassia **gum** although it was increased in other samples except **gum** tragacanth. The results indicate that C. fistula seed **gum** is a potential binder for pharmaceutical industry.

1992

3/3,AB/23 (Item 23 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08795512 BIOSIS NO.: 199395084863
Hydrolytic properties of two cellulases of Trichoderma reesei expressed in yeast.
AUTHOR: Bailey Michael J(a); Siika-Aho Matti; Valkeajarvi Anne; Penttila Merja E
AUTHOR ADDRESS: (a)VTT, Biotechnical Lab., Box 202, SF-02151 Espoo**Finland

JOURNAL: Biotechnology and Applied Biochemistry 17 (1):p65-76 **1993**
ISSN: 0885-4513
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: Two cellulases of the filamentous fungus Trichoderma reesei, cellobiohydrolase II (CBHII, EC 3.2.1.91) and endoglucanase I (EGI, EC 3.2.1.4), produced in recombinant strains of the yeast Saccharomyces cerevisiae, were tested in the hydrolysis of cellulose, xylan and other polymeric substrates. Both enzymes were active against unsubstituted, insoluble cellulose. CBHII had greater activity than EGI against crystalline cellulose, whereas in the case of amorphous substrate the order was reversed. Evidence for synergism was obtained when mixtures of the two enzymes were used with a constant total protein dosage. The EGI was also active against soluble substituted cellulose derivatives, whereas the activity of CBHII against these substrates was insignificant. Both enzymes were active against barley (1 fwdarw 3,1 fwdarw 4)-beta-glucan, but were inactive against (1 fwdarw 3,1 fwdarw 6)-beta-glucan (laminarin). An apparent low mannan-degrading activity of EGI against locust-bean (Ceratonia siliqua) **gum galactomannan** was not confirmed when homopolymeric mannan was used as substrate in a prolonged hydrolysis test. EGI exhibited considerably greater activity against insoluble, unsubstituted hardwood xylan than against amorphous cellulose. Soluble 4-O-methyl-glucuronoxylan was also attacked by EGI, although to a somewhate lesser extent than the unsubstituted xylan. By comparison with two purified xylanases of T. reesei, EGI produced xylo-oligosaccharides with a longer mean chain length when acting on both

substituted and unsubstituted xylan substrates. CBHII was inactive against xylan.

1993

3/3,AB/24 (Item 24 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08789585 BIOSIS NO.: 199395078936
Gelling interactions of phycocolloids extracted from red algae with a **galactomannan** from locust bean and a glucomannan from konjac tuber.
AUTHOR: Sewall Christopher J
AUTHOR ADDRESS: FMC Corporation, Food Ingredients Division, Box 308, Rockland, ME 04841**USA
JOURNAL: Journal of Applied Phycology 4 (4):p347-351 **1992**
ISSN: 0921-8971
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: The synergistic interaction between three red algae extracts and the **galactomannan** from locust bean (Ceratonia siliqua L.) and the glucomannan from the konjac tuber (Amorphophallus konjac C. Koch (syn. A rivieri Durien var. konjac (C. Kock) Engler)) has been characterized in terms of gel properties. The extract obtained from Eucheuma alvarezii Doty (E. cottonii of commerce) was highly synergistic with both konjac flour and locust bean **gum**. Furcellaria fastigiata (Huds.) Lamour and Eucheuma gelatinae (Esper) extracts were only slightly synergistic with locust bean **gum**, but were found to be highly synergistic with konjac flour.

1992

3/3,AB/25 (Item 25 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

08714457 BIOSIS NO.: 199395003808
Determination of **galactomannan** (**gum**) in guar (Cyamopsis tetragonolobus) by high performance liquid chromatography.
AUTHOR: Hansen Ross W(a); Byrnes Scott M; Johnson Alan D(a)
AUTHOR ADDRESS: (a)CSIRO Division Tropical Crops Pastures, Cunningham Laboratory, 306 Carmody Road, St. Lucia, Quee**ungary
JOURNAL: Journal of the Science of Food and Agriculture 59 (3):p419-421 **1992**
ISSN: 0022-5142
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: English

ABSTRACT: A method is described for analysis by HPLC of **galactomannan** (**gum**) in seed of guar (Cyamopsis tetragonolobus (L) Taub). The dry seed is ground in 950 ml litre-1 ethanol, and free sugars are removed by ethanol extract; the seed residue is hydrolysed with 2 M trifluoracetic acid in a pressure cooker (1 h at apprx 105 kPa). Hydrolysing the **gum** in situ avoids the problems of common with other techniques of extracting different fractions of **gum**, each having different mannose:galactose ratios. The method serves as a simple measure of **gum** contents in guar, and up to 20 samples per day can be processed.

1992

3/3,AB/26 (Item 26 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07860684 BIOSIS NO.: 000092120050
SYNERGISTIC INTERACTION BETWEEN DEACYLATED XANTHAN AND **GALACTOMANNAN**
AUTHOR: TAKO M
AUTHOR ADDRESS: DEP. AGRIC. CHEM., UNIV. RYUKYUS, NISHIHARA, OKINAWA 903-01, JPN.
JOURNAL: J CARBOHYDR CHEM 10 (4). 1991. 619-634. **1991**
FULL JOURNAL NAME: Journal of Carbohydrate Chemistry
CODEN: JCACD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The dynamic modulus and optical rotation of a mixed solution of denatured xanthan (depyruvated and deacylated) and **galactomannan** (locust-bean **gum** and guar **gum**) were measured with a rheogoniometer and a polarimeter. Gelation occurred in a mixture of native xanthan with locust-bean **gum** at a concentration of 0.2% total gums at room temperature, but not with guar **gum**. A mixture of deacylated xanthan and locust-bean **gum** showed the highest dynamic modulus, about three times as strong as that of a mixture with depyruvated xanthan. The dynamic modulus of a mixture of deacylated xanthan and locust-bean **gum** stayed at very small value in the presence of CaCl2 (6.8 mM) and urea (4.0 M). Possible binding sites between deacylated xanthan and locust-beam **gum** molecules are proposed.

1991

3/3,AB/27 (Item 27 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07799854 BIOSIS NO.: 000092092425
A RHEOLOGICAL CHARACTERIZATION OF KAPPA CARRAGEENAN **GALACTOMANNAN** MIXED GELS A COMPARISON OF LOCUST BEAN **GUM** SAMPLES
AUTHOR: FERNANDES P B; GONCALVES M P; DOUBLIER J L
AUTHOR ADDRESS: ESCOLA SUPERIOR BIOTECNOLOGIA, UNIV. CATOLICA PORTUGUESA, RUA DR ANTONIO BERNARDINO ALMEIDA, 4200 PORTO, PORTUGAL.
JOURNAL: CARBOHYDR POLYM 16 (3). 1991. 253-274. **1991**
FULL JOURNAL NAME: Carbohydrate Polymers
CODEN: CAPOD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Mixed gels of kappa-carrageenan and locust bean **gum** (LBG) obtained from different varieties of Portuguese carob trees and commercial gums were compared. The viscoelastic properties of the gels were measured using dynamic parallel-plate geometry. Mixed gels at 1.0% of total polysaccharide concentration without addition of KCl showed, whatever the LBG sample, a synergistic maximum when the ration of kappa-carrageenan to LBG was 80/20. The amplitude of the maximum varied with the LBG sample. The gels prepared at 0.3% total concentration with KCl added, showed a synergistic maximum at the same mixing ratio and the amplitude varied in a similar manner. Each sample was fractionated into the fraction soluble at 25.degree.C and the fraction soluble at 90.degree.C. Mixed gels of kappa-carrageenan with cold-water-soluble and hot-water-soluble fractions, and also with tara **gum** and guar **gum** were prepared at the 80/20 ratio. It was found that the synergistic maxima were related to the intrinsic viscosity and the M/G

ratio. A linear relationship between the storage modulus G'max at the synergistic maximum and the product of the intrinsic viscosity and the square of the mannose to galactose ratio was found, suggesting that the synergistic mechanism can be ascribed to both the unsubstituted (galactose-free) regions of the **galactomannan** and the molecular weight.

1991

3/3,AB/28 (Item 28 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07786604 BIOSIS NO.: 000041072555
SEED **GUM** OF STRYPHNODENDRON-BARBATIMAN BARBATIMAO
AUTHOR: REICHER F; LEITNER S C S; SIERAKOWSKI M R; FONTANA J D; CORREA J B C
AUTHOR ADDRESS: DEP. BIOCHEM., PO BOX 19046, 81.504, CURITIBA, PR BRAZIL.
JOURNAL: TWELFTH SYMPOSIUM ON BIOTECHNOLOGY FOR FUELS AND CHEMICALS, GATLINBURG, TENNESSEE, USA, MAY 7-11, 1990. APPL BIOCHEM BIOTECHNOL 28-29 (0). 1991. 353-362. **1991**
CODEN: ABIBD
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1991

3/3,AB/29 (Item 29 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07570929 BIOSIS NO.: 000091111483
PURIFICATION AND CHARACTERIZATION OF THERMOSTABLE BETA MANNANASE AND ALPHA GALACTOSIDASE FROM BACILLUS-STEAROTHERMOPHILUS
AUTHOR: TALBOT G; SYGUSCH J
AUTHOR ADDRESS: DEP. BIOCHIM., FAC. MED., UNIV. SHERBROOKE, SHERBROOKE, QUE. J1H 5N4, CAN.
JOURNAL: APPL ENVIRON MICROBIOL 56 (11). 1990. 3505-3510. **1990**
FULL JOURNAL NAME: Applied and Environmental Microbiology
CODEN: AEMID
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Bacillus stearothermophilus secretes .beta.-mannanase and .alpha.-galactosidase enzymatic activities capable of hydrolyzing **galactomannan** substrates. Expression of the hemicellulase activities in the presence of locust bean **gum** was sequential, with mannanase activity preceding expression of .alpha.-galactosidase activity. The hemicellulase activities were purified to homogeneity by a combination of ammonium sulfate fractionation, gel filtration, hydrophobic interaction chromatography, and ion-exchange and chromatofocusing techniques. The purified .beta.-D-mannanase is a dimeric enzyme (162 kilodaltons) composed of subunits having identical molecular weight (73,000). Maximal activity did not vary between pH 5.5 and 7.5. The .beta.-D-mannanase activity exhibited thermostability, retaining nearly full activity after incubation for 24 h at 70.degree. C and pH 6.5. The enzyme displayed high specificity for **galactomannan** substrates, with no secondary xylanase or cellulase activity detected. Hydrolysis of locust bean **gum** yielded short oligosaccharides compatible with an endo mode of substrate depolymerization. Initial rate velocities of the mannanase activity displayed substrate inhibition and yielded estimates for Vmax and Km of 455 .+-. 60 U/mg and 1.5 .+-. 0.3 mg/ml, respectively, at 70.degree. C and pH 6.5. The .alpha.-galactosidase activity corresponded to a trimeric enzyme (247

kilodaltons) having subunits of identical molecular weight (82,000). The .alpha.-galactosidase had maximal activity at pH 7 to [redacted] and retained full activity after 24 h of incubation at 60.degree. C. The enzyme had only limited activity on **galactomannan** substrates as compared with hydrolysis of p-nitrophenyl .alpha.-D-galactose. Kinetics of p-nitrophenyl .alpha.-D-galactose hydrolysis yielded linear reciprocal plots corresponding to Vmax and Km of 195 .+-. 10 U/mg and 0.25 .+-. 0.02 mM, respectively, at 60.degree. C and pH 7. The characterization of the mannanase activity is consistent with its potential use in enzymatic bleaching of softwood pulps.

1990

3/3,AB/30 (Item 30 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07521077 BIOSIS NO.: 000091084206
STUDIES ON A PURIFICATION METHOD FOR LOCUST BEAN **GUM** BY PRECIPITATION WITH ISOPROPANOL
AUTHOR: LOPES DA SILVA J A; GONCALVES M P
AUTHOR ADDRESS: ESCOL SUPERIOR BIOTECNOL., UNIVERSIDAE CATOLICA PORTUGUESA, RUA DR. ANTONIO BERNARDINO DE ALMEIDA, 4200 PORTO, PORTUGAL.
JOURNAL: FOOD HYDROCOLLOIDS 4 (4). 1990. 277-288. **1990**
FULL JOURNAL NAME: Food Hydrocolloids
CODEN: FOHYE
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A commercial sample of locust bean **gum** was dissolved in hot water, centrifugated and the supernatant and the sediment were recovered. Part of the supernatant was freeze-dried and the rest was poured into isopropanol to yield a precipitate of purified **gum**. This precipitate was recovered and a part of it was subjected to a second purification with isopropanol; an almost pure **galactomannan** sample was obtained. Another sample of the crude **gum** was fractionated on the basis of its solubility in water at different temperatures. Five fractions were obtained with mannose to galactose ratios (M/G) increasing with the temperature of fractionation. The purified samples exhibited higher M/G ratios and number average molecular weights (Mn) than the crude **gum**, whereas the opposite was observed with the freeze-dried sample. The polydispersity index decreased quite significantly in purified samples, meaning that they were more homogeneous than the original sample. Intrinsic viscosities were lower for the purified samples. The flow behaviour of aqueous solutions of the gums was studied in the concentration range 0.6-1.2 g/dl: the solutions of the crude **gum** had higher viscosities than those of the purified and the freeze-dried gums at similar concentrations, throughout the shear rate range.

1990

3/3,AB/31 (Item 31 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07498007 BIOSIS NO.: 000091071876
PRODUCTION OF BETA MANNANASES BY TRICHODERMA-HARZIANUM E58
AUTHOR: TORRIE J P; SENIOR D J; SADDLER J N
AUTHOR ADDRESS: DEP. BIOTECHNOL. CHEM., FORINTEK CAN. CORP., 800 MONTREAL RD., OTTAWA, ONT. K1G 3Z5, CANADA.
JOURNAL: APPL MICROBIOL BIOTECHNOL 34 (3). 1990. 303-307. **1990**
FULL JOURNAL NAME: Applied Microbiology and Biotechnology

CODEN: AMBID
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The extracellular mannanase and endoglucanase activities of Trichoderma harzianum E58 were followed during growth of the fungus on 1% (w/v) mannose, Avicel, locust bean **gum**, konjac powder or the water-soluble fraction from stream-treated white spruce (SWS). Peak **galactomannanase** activities of 0.60 IU/ml and 0.66 IU/ml were detected in culture filtrates after 6-8 days growth on locust bean **gum** and Avicel respectively. When SWS or konjac powder were used as substrates, lower but relatively constant levels of activity were detected between 2 and 11 days of growth. Growth of the fungus on mannan-rich locust bean **gum** resulted in the highest specific glucomannanase and **galactomannanase** values. Although growth on 1% mannose failed to induce any mannanase activity, when 0.5% **galactomannan** was added with mannose, mannanase activity was detected in the culture filtrate. This indicated that mannanase production was not repressed in the presence of mannose. Samples were taken from each culture at the time of maximum **galactomannanase** activity. A protein profile obtained by isoelectric focusing was followed by a zymogram overlay to detect bands exhibiting **galactomannanase**, glucomannanase and endoglucanase activities. Several bands showed mannanase and endoglucannase activity. One band at pI 6.55 revealed both gluco- and **galactomannanase** activity and was free of detectable cellulase activity.

1990

3/3,AB/32 (Item 32 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07481388 BIOSIS NO.: 000091066107
PURIFICATION AND SOME PROPERTIES OF THE MANNANASES FROM THIELAVIA-TERRESTRIS
AUTHOR: ARAUJO A; WARD O P
AUTHOR ADDRESS: DEP. BIOL., UNIV. WATERLOO, WATERLOO, ONTARIO, CANADA N2L 3G1.
JOURNAL: J IND MICROBIOL 6 (4). 1990. 269-274. **1990**
FULL JOURNAL NAME: Journal of Industrial Microbiology
CODEN: JIMIE
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Thielavia terrestris NRRL 8126 cell free supernatants contained mannanase and .beta.-mannosidase when cultured on a complex media containing locust bean **gum**. Using acetone precipitation, SP-Sephadex C50 ion exchange chromatography and preparative gel electrophoresis, the crude enzyme was resolved into one .beta.-D-mannosidase and four .beta.-D-mannanase components. .beta.-D-mannosidase had a specific activity of 0.02 (U/mg) on p-nitrophenyl-.beta.-D-mannopyranoside substrate. Mannanase components M1, M2, M3 and M4 had specific activities of 28.2, 38.7, 52.8, and 4.17 (U/mg) respectively on purified locust bean **galactomannan** substrate. pH optima for the enzymes were in the range 4.5-5.5. Mannanase component M4 manifested the greatest thermostability, retaining full activity for 3 h at 60.degree.C. Molecular weights determined by SDS-PAGE were 72,000 for .beta.-mannosidase and 52,000, 30,000, 55,000 and 89,000 for M1, M2, M3 and M4 respectively. Carbohyrate contents of the enzymes ranged from 6-36%. Preliminary studies indicate that enzyme components hydrolyse the mannan substrate in a synergistic manner.

1990

3/3,AB/33 (Item 33 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07475722 BIOSIS NO.: 000091060441
EXOCELLULAR BETA MANNANASES FROM HEMICELLULOLYTIC FUNGI
AUTHOR: JOHNSON K G
AUTHOR ADDRESS: DIV. BIOL. SCIENCES, NATIONAL RES. COUNCIL CANADA, OTTAWA, ONTARIO, CANADA K1A OR6.
JOURNAL: WORLD J MICROBIOL BIOTECHNOL 6 (2). 1990. 209-217. **1990**
CODEN: WJMBE
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Production of exocellular .beta.-mannan- and xylan-degrading enzymes by eight wood rotting fungi was studied. Although all organisms excreted .beta.-mannanase, endoxylanase and acetylxylan esterase, production of L-.alpha.-arabinosidase and 4-O-methylglucuronidase was variable. .beta.-Mannanosidase was not detected in any culture filtrate. Highest .beta.-mannanase and endoxylanase activities were observed in cultures of Polyporus versicolor and Schizophyllum commune grown in Avicel-supplemented media. While crude .beta.-mannanases from Linzites saepiria and S. commune exhibited equivalent affinities for gluco- and **galactomannan** substrates, P. versicolor .beta.-mannanase preferred a glucomannan substrate and did not use **galactomannan** from guar **gum** as a subtrate.

1990

3/3,AB/34 (Item 34 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07266971 BIOSIS NO.: 000090046847
SALINITY EFFECTS ON EMERGENCE VEGETATIVE GROWTH AND SEED YIELD OF GUAR
AUTHOR: FRANCOIS L E; DONOVAN T J; MAAS E V
AUTHOR ADDRESS: U.S. SALINITY LAB., 4500 GLENWOOD DRIVE, RIVERSIDE, CALIF., USA 92501.
JOURNAL: AGRON J 82 (3). 1990. 587-592. **1990**
FULL JOURNAL NAME: Agronomy Journal
CODEN: AGJOA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Guar [Cyamopsis tetragonoloba (L.) Taub] seed is an important source of **galactomannan gum** used in food and industrial products. Increased demand and an insufficient domestic supply has led to an increased interest in this crop in the semi-arid western USA where many soils are, or have the potential to become, highly saline. This study was conducted to determine the effect of soil salinity on vegetative growth and seed yield of two cultivars, 'Kinman' and 'Esser,' grown under field conditions. Six salinity treatments were imposed on a Holtville silty clay [clayey over loamy, montmorillonitic (calcareous), hyperthermic Typic Torrifluvent] by irrigating with waters salinized with NaCl and CaCl2 (1:1 by weight). Electrical conductivities of the irrigation waters were 1.3, 2.5, 5.0, 7.4, 10.0, and 12.4 dS/m during the 1st yr, and 1.2, 2.5, 4.5, 5.5, 6.5, and 7.5 dS/m during the 2nd yr. Seed yield of both cultivars was unaffected soil salinity up to 8.8 dS/m (mean electrical conductivity of the saturated-soil extracts in the rootzone). Each unit increase in salinity above 8.8 dS/m reduced seed yield by 17%, which places guar in the moderately tolerant category for seed production. Reduction in the number of pods per **plant** and weight

per seed were the primary factors contributing to reduced yields. Vegetative growth was decreased 9.6% for each unit increase in salinity above 4.9 dS/m. **Plant** emergence was determined in greenhouse sand cultures with irrigation waters of 0.8, 4.4, 8.5, 11.3, 15.7, and 18.8 dS/m. Emergence was unaffected by salt levels up to 8.5 dS/m; greater levels delayed but did not significantly reduce the percent emerged.

1990

3/3,AB/35 (Item 35 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

07247510 BIOSIS NO.: 000090027386
SECRETION OF THE ALPHA GALACTOSIDASE FROM CYAMOPSIS-TETRAGONOLOBA GUAR BY BACILLUS-SUBTILIS
AUTHOR: OVERBEEKE N; TERMORSHUIZEN G H M; GIUSEPPIN M L F; UNDERWOOD D R; VERRIPS C T
AUTHOR ADDRESS: UNILEVER RES. LABORATORIUM, VLAARDINGEN, NETH.
JOURNAL: APPL ENVIRON MICROBIOL 56 (5). 1990. 1429-1434. **1990**
FULL JOURNAL NAME: Applied and Environmental Microbiology
CODEN: AEMID
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A fusion of DNA sequences encoding the SPO2 promoter, the .alpha.-amylase signal sequence from Bacillus amyloliquefaciens, and the mature part of the .alpha.-galactosidase from Cyamopsis tetragonoloba (guar) was constructed on the Bacillus subtilis multicopy vector. Bacillus cells of the protease-deficient strain DB104 harboring this vector produced and secreted the **plant** enzyme .alpha.-galactosidase up to levels of 1,700 U/liter. A growth medium suppressing the residual proteolytic activity of strain DB104 was used to reach these levels in a fermentor. Purification of secreted product followed by NH2-terminal amino acid sequencing showed that the .alpha.-amylase signal sequence had been processed correctly. The molecular mass of the product estimated by sodium dodecyl sulfate-polyacrylamide gel electrophoresis was slightly lower than that of the **plant** purified enzyme, which is most likely due to glycosylation of the latter. The .alpha.-galactosidase product was active both on the artificial substrate para-nitrophenyl-.alpha.-D-galactopyranoside and on the **galactomannan** substrate, guar **gum**. The activity of this Bacillus sp.-produced enzyme was similar to that of the glycosylated enzyme purified from guar seeds, indicating that glycosylation has no essential function for enzyme activity.

1990

3/3,AB/36 (Item 36 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

06967326 BIOSIS NO.: 000089079085
DEVELOPMENT OF A BIOTECHNOLOGICAL PROCESS FOR THE MODIFICATION OF **GALACTOMANNAN** POLYMERS WITH **PLANT** ALPHA GALACTOSIDASE
AUTHOR: BULPIN P V; GIDLEY M J; JEFFCOAT R; UNDERWOOD D R
AUTHOR ADDRESS: UNILEVER RES., COLWORTH HOUSE, SHARNBROOK, BEDFORD MK44 1LQ, UK.
JOURNAL: CARBOHYDR POLYM 12 (2). 1990. 155-168. **1990**
FULL JOURNAL NAME: Carbohydrate Polymers
CODEN: CAPOD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Two **galactoma[redacted]n** polysaccharides (guar **gum**, l[redacted]st bean **gum**) are commonly used in foods and other applications to manipulate aqueous rheology. Locust bean **gum** (23% galactose, 77% mannose) is more functional and more expensive than guar **gum** (38% galactose, 62% mannose). We have investigated the enzymic (.alpha.-galactosidase) removal of side-chain galactose residues from guar **gum** to yield **galactomannans** similar in chemical composition and functional properties to locust bean **gum**. The optimum concentration for .alpha.-galactosidase action increased from .apprx. 2% w/w (solution state) at 35.degree. C to .apprx. 10% w/w (gel-like state) at 42.degree. C to 20-30% w/w (semi-solid particulate state) at 50.degree. C due to increased enzymic temperature tolerance at high substrate concentrations. **Galactomannans** varying in galactose content were prepared by manipulating reaction time, temperature and enzyme/guar **gum** ratio. Enzymically modified guar **galactomannans** with 22-24% galactose contents were found to reproduce the rheological and stabilisation properties of locuse bean **gum**. These findings form the basis for a feasible biotechnological route for the upgrading of guar **gum** to **galactomannan** polymers with enhanced functionality.

1990

3/3,AB/37 (Item 37 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

06453168 BIOSIS NO.: 000037025179
THE INTERACTION OF CASTOR BEAN LECTINS WITH **GALACTOMANNAN**
AUTHOR: HATAKEYAMA T; OHBA H; YAMASAKI N; FUNATSU G
AUTHOR ADDRESS: LAB. BIOCHEM., FAC. AGRIC., KYUSHU UNIV., HAKOZAKI, HIGASHI-KU, FUKUOKA 812, JAPAN.
JOURNAL: AGRIC BIOL CHEM 53 (3). 1989. 853-854. **1989**
FULL JOURNAL NAME: Agricultural and Biological Chemistry
CODEN: ABCHA
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1989

3/3,AB/38 (Item 38 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

06323337 BIOSIS NO.: 000036026490
A NEUTRAL SEED-**GUM** FROM CROTALARIA-VERRUCOSA
AUTHOR: GUPTA R; GUPTA P C
AUTHOR ADDRESS: DEP. CHEM., UNIV. ALLAHABAD, ALLAHABAD-211002, INDIA.
JOURNAL: CARBOHYDR RES 181 (0). 1988. 287-292. **1988**
FULL JOURNAL NAME: Carbohydrate Research
CODEN: CRBRA
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1988

3/3,AB/39 (Item 39 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

05843322 BIOSIS NO.: 000034066471
DIFFERENCES IN PROTEIN COMPONENTS BETWEEN COTYLEDON AND HYPOCOTYL OF CLUSTERBEAN CYAMOPSIS-TETRAGONOLOBA SEED

AUTHOR: SUGIMOTO T; KIM C-S; MOMMA M; HASHIZUME K; SAIO K
AUTHOR ADDRESS: NATL FOREST PROD. RES. INST., MINISTRY AGRIC. FORESTRY AND FISHERIES, 2-1-2, KAMNONDAI, YATABE-MACHI, TSUKUBA-GUN, IBARAKI 305, JAPAN.
JOURNAL: AGRIC BIOL CHEM 51 (8). 1987. 2249-2252. **1987**
FULL JOURNAL NAME: Agricultural and Biological Chemistry
CODEN: ABCHA
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1987

3/3,AB/40 (Item 40 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

05727714 BIOSIS NO.: 000084076120
FLAVOR-TASTE PERCEPTION IN THICKENED SYSTEMS THE EFFECT OF GUAR **GUM** ABOVE AND BELOW
AUTHOR: BAINES Z V; MORRIS E R
AUTHOR ADDRESS: DEP. FOOD RES. TECHNOL., CRANFIELD INST. TECHNOL., SILSOE COLL., SILSOE, BEDFORD MK45 4DT, UK.
JOURNAL: FOOD HYDROCOLLOIDS 1 (3). 1987. 197-206. **1987**
FULL JOURNAL NAME: Food Hydrocolloids
CODEN: FOHYE
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The effect of polymer concentration of flavour/taste perception in thickened systems has been investigated using solutions incorporating a fixed concentration of sucrose and flavouring and a wide range of concentrations of three different samples of guar **gum**, with intrinsic viscosity values of [.eta.] = 16.7, 8.4 and 5.04 dl/g, respectively. For all three samples the perceived intensity of both attributes (assessed by 18 panelists using magnitude estimation against a fixed control solution) was independent of polymer concentration up to c* (.apprxeq. 2.85/[.eta.]), but decreased steeply at higher degrees of space occupancy by the polymer, with both sweetness and flavour intensity showing essentially the same dependence on polymer concentration. This behaviour is interpreted in terms of restricted replenishment of surface depletion with increasing coil overlap and entanglement.

1987

3/3,AB/41 (Item 41 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

05381778 BIOSIS NO.: 000032104907
A NEUTRAL SEED-**GUM** FROM CASSIA-RENIGERA
AUTHOR: GUPTA R; KHARE N; SINGH V; GUPTA P C
AUTHOR ADDRESS: CHEMICAL LAB., DEP. OF CHEMISTRY, UNIV. OF ALLAHABAD, ALLAHABAD-211002, INDIA.
JOURNAL: CARBOHYDR RES 159 (2). 1987. 336-340. **1987**
FULL JOURNAL NAME: Carbohydrate Research
CODEN: CRBRA
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1987

3/3,AB/42 (Item 42 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

05344647 BIOSIS NO.: 032067776
IDENTIFICATION OF COMMERCIAL MILLING TECHNIQUES TO PRODUCE HIGH SUGAR HIGH FIBER HIGH PROTEIN AND HIGH **GALACTOMANNAN GUM** FRACTIONS FROM PROSOPIS PODS
AUTHOR: SAUNDERS R M; BECKER R; MEYER D; DEL VALLE F R; MARCO E; TORRES M E
AUTHOR ADDRESS: WESTERN REGIONAL RES. CENT., U.S. DEP. AGRIC., ALBANY, CALIF. 94710.
JOURNAL: SYMPOSIUM ON ESTABLISHMENT AND PRODUCTIVITY OF TREE PLANTINGS IN SEMIARID REGIONS. FOR ECOL MANAGE 16 (1-4). 1986. 169-180. **1986**
CODEN: FECMD
RECORD TYPE: Citation
LANGUAGE: ENGLISH
1986

3/3,AB/43 (Item 43 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

05084249 BIOSIS NO.: 000081042373
THE AMINO-ACID COMPOSITION OF THE PROTEINACEOUS COMPONENT OF GUAR **GUM** CYAMOPSIS-TETRAGONOLOBUS
AUTHOR: ANDERSON D M W; HOWLETT J F; MCNAB C G A
AUTHOR ADDRESS: CHEM. DEP., UNIV., EDINBURGH EH9 3JJ, U.K.
JOURNAL: FOOD ADDIT CONTAM 2 (4). 1985. 225-230. **1985**
FULL JOURNAL NAME: Food Additives and Contaminants
CODEN: FACOE
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Guar **gum**, powdered endosperm from the seeds of the legume Cyamopsis tetragonolobus, is a **galactomannan** which contains 2.5-4.5% of a proteinaceous component. Data presented for 11 bulk commercial samples show that the most abundant amino acids are glycine, glutamic acid, aspartic acid, serine and alanine, but that their relative proportions vary considerably. The proportions of other amino acids, i.g. histidine, isoleucine, phenylalanine, threonine, tyrosine and valine are remarkably constant. There appear to be some correlations between viscosity and the glycine, arginine and proline contents. Data for the amino acid compositions of several chemical derivatives of a medium-viscosity **gum** guar sample indicate that the proteinaceous component is retained but suffers variable modification. The amino acid profile for guar **gum** differs extensively from those for **gum** arabic and **gum** karaya; this provides a useful analytical supplement to sugar determinations for studies of admixtures of these hydrocolloids.

1985

3/3,AB/44 (Item 44 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

04715674 BIOSIS NO.: 000080018800
POLYSACCHARIDE PRECIPITATION AS A MODEL TO STUDY SUGAR BINDING BY LECTINS JACK FRUIT ARTOCARPUS-INTEGRIFOLIA SEED LECTIN INTERACTION WITH **GALACTOMANNAN**
AUTHOR: APPUKUTTAN P S; KUMAR G S; BASU D
AUTHOR ADDRESS: NEUROCHEM. DIV., SREE CHITRA INST. MED. SCI. AND TECHNOL., TRIVANDRUM 695 011.
JOURNAL: INDIAN J BIOCHEM BIOPHYS 21 (6). 1984 (RECD. 1985). 353-356. **1984**
FULL JOURNAL NAME: Indian Journal of Biochemistry and Biophysics
CODEN: IJBBB

RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The use of lectin-mediated precipitation of soluble polysaccharides measured turbidimetrically as a model system for the study of lectin-carbohydrate interaction has been demonstrated in the case of the jack fruit seed (Artocarpus integrifolia) lectin interaction with guar **gum**. Variations in physicochemical conditions and addition of reversible protein modifiers, not possible with the conventional hemagglutination method, could be studied using this system. Turbidity of jack fruit seed lectin with soluble guar **gum** was abolished beyond the pH range 4.5-9 and in presence of 0.5 M KSCN or 1 M urea. Binding to insolubilized guar **gum** was affected to a lesser extent. Specificity of the lectin for the .alpha.-anomer of galactosides was clearly established by inhibition experiments.

1984

3/3,AB/45 (Item 45 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

04713434 BIOSIS NO.: 000080016560
CARBOHYDRATE MAKE UP OF GREEN FULLY RIPENED PODS AND SEEDS OF LEUCAENA-LEUCOCEPHALA
AUTHOR: ARORA S K; JOSHI U N
AUTHOR ADDRESS: CHEM. LAB., COLL. AGRICULTURE, HARYANA AGRICULTURAL UNIV., HISSAR-125004, INDIA.
JOURNAL: STARCH STAERKE 37 (4). 1985. 109-111. **1985**
FULL JOURNAL NAME: Starch Staerke
CODEN: STARD
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The chemical composition of the green, fully ripened pods and seeds of L. leucocephala shows some variation in their nutrient contents in different genotypes. Green pods are a rich source of protein and well comparable with the protein content of leguminous seeds. The structural carbohydrate varies significantly. Green pods are of dual importance to supply fiber and nutrients. The empty fully ripened pods are fibrous. The seeds, besides having rich protein content, have 20-25% **galactomannan gum** which has the potential to be used as a laxative and in vegetable soups. Mimosine content is higher in the green pods, but it is thermolabile.

1985

3/3,AB/46 (Item 46 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

04688296 BIOSIS NO.: 000079101425
A NONIONIC SEEDGUM FROM CASSIA-CORYMBOSA
AUTHOR: TEWARI K; KHARE N; SINGH V; GUPTA P C
AUTHOR ADDRESS: DEP. CHEMISTRY, UNIV. ALLAHABAD, ALLAHABAD 211 002, INDIA.
JOURNAL: CARBOHYDR RES 135 (1). 1984 (RECD. 1985). 141-146. **1984**
FULL JOURNAL NAME: Carbohydrate Research
CODEN: CRBRA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A polysaccharide was extracted from C. corymbosa seeds with cold, acidulated water, and purified to give a water-soluble product containing

D-galactose and D-mannose in 4:7 molar ratio. Acid-catalyzed fragmentation, periodate oxidation, methylation and enzymic hydrolysis showed that the seed **gum** has a branched structure consisting of a linear chain of .beta.-D-(1 .fwdarw. 4)-linked mannopyranosyl units, some of which are substituted at O-6 by 2 .alpha.-D-(1 .fwdarw. 6) galactopyranosyl units mutually linked glycosidically. Mehtylation anaylsis of the **galactomannan** afforded 2,3,4-tri and 2,3,4,6-tetra-O-methylgalactose, along with 2,3-di and 2,3,6-tri-O-methylmannose, in the molar ratios of 2:2:2:5. Both the methylation and the periodate-oxidation studies showed .apprx. 36.4% of end groups. The significance of these results, together with the findings of partial hydrolysis with acid, are discussed, in relation to ascertaining the structure of the repeating unit of the polysaccharide.

1984

3/3,AB/47 (Item 47 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

04187407 BIOSIS NO.: 000077013451
PANCREATIC AND INTESTINAL RESPONSE TO DIETARY GUAR **GUM** IN RATS
AUTHOR: POKSAY K S; SCHNEEMAN B O
AUTHOR ADDRESS: DEP. NUTRITION, UNIV. CALIF., DAVIS, CALIF. 95616.
JOURNAL: J NUTR 113 (8). 1983. 1544-1549. **1983**
FULL JOURNAL NAME: Journal of Nutrition
CODEN: JONUA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Rats were fed a fiber-free semi-purified diet or one containing 10% guar **gum**, a hydrophilic **galactomannan**, or a laboratory stock diet. The presence of guar **gum** in the diet decreased food intake and body weight gain perhaps due to distension of the gastrointestinal tract. Relative to the group fed fiber-free diet, liver weight was smaller and pancreas weight larger in the groups consuming guar **gum** or the stock diet. The latter 2 diets were hypocholesterolemic relative to the fiber-free diet. In both the unfed and fed state the wet weight of the intestine was significantly greater in the rats consuming guar **gum**. The greatest difference was in the wet weights of the small intestine in the fed animals. In the pancreas, there were no notable differences in digestive enzyme activity between the groups fed guar and fiber-free diet. In the intestine, lipase, amylase and total proteolytic activity were significantly greater in the rats fed guar **gum**. This elevation of enzyme activity in the intestine could be due to a slower rate of enzyme degradation or to enhancement of the enzyme secretion. The ability of guar **gum** to increase the volume of intestinal contents may be important in its slowing of absorption.

1983

3/3,AB/48 (Item 48 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

03936065 BIOSIS NO.: 000076021631
FREE AND ESTERIFIED FATTY-ACIDS OF GUAR **GUM**
AUTHOR: GYNTHER J; HUHTIKANGAS A; KARI I; WICKSTROM K
AUTHOR ADDRESS: DEPARTMENT OF PHARMACY, UNIVERSITY OF KUOPIO, P. O. BOX 138, 70101 KUOPIO 10, FINLAND.
JOURNAL: PLANTA MED 46 (1). 1982. 60-63. **1982**
FULL JOURNAL NAME: Planta Medica

CODEN: PLMEA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Guar **gum** [from Cyamopsis tetragonolobus] consists essentially of the polysaccharide **galactomannan**. Small amounts of various lipid soluble compounds, including long chain fatty acids, are also present. Free and esterified fatty acids of guar **gum** were analyzed by GLC-MS [mass spectrometry]. Palmitate (hexadecanoate), oleate (9-octadecenoate) and linoleate (9,12-octadecadienoate) were the main components of the lipid fraction, but several long chain saturated acids and at least two 2-hydroxy-derivatives of fatty acids are also present.

1982

3/3,AB/49 (Item 49 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

03858432 BIOSIS NO.: 000075036505
PURIFICATION AND CHARACTERIZATION OF A NOVEL EXO-BETA MANNANASE FROM AEROMONAS-HYDROPHILA-SSP-ANAEROGENES STRAIN F-25
AUTHOR: ARAKI T; KITAMIKADO M
AUTHOR ADDRESS: DEP. FISHERIES, FAC. AGRICULTURE, KYUSHU UNIV., HAKOZAKI, HIGASHI-KU, FUKUOKA, FUKUOKA 812.
JOURNAL: J BIOCHEM (TOKYO) 91 (4). 1982. 1181-1186. **1982**
FULL JOURNAL NAME: Journal of Biochemistry (Tokyo)
CODEN: JOBIA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A novel exo-.beta.-mannase(1,4-.beta.-D-mannan mannobiohydrolase, EC 3.2.1.78) was isolated from the culture fluid of strain No. F-25 of A. hydrophila ssp. anaerogenes, and purified about 4000-fold by ammonium sulfate precipitation and successive column chromatographies. The final enzyme preparation appeared to be homogeneous on polyacrylamide gel electrophoresis. The enzyme hydrolyzed the .beta.-1,4-mannan link in polysaccharides of 3 or more .beta.-1,4-linked D-mannose units. The enzyme had a MW of 64,000, pI [isoelectric point] of 5.9, pH optimum of 6.0, and was stable in a pH region of 5.0 to 8.5 and at temperatures below 45.degree. C. The Km values of the enzyme were 5.1 .times. 10-4 M for mannotriose, 2.4 .times. 10-4 M for mannotetraose and 1.3 .times. 10-4 M for mannopentaose. The enzyme attacked codium and coffee mannans to give only mannobiose. Mannobiosyl- and mannotetraosyl-mannitol were hydrolyzed to produce mannobiose and mannitol, while mannobiose and mannosylmannitol were released from mannotriosylmannitol. The enzyme did not act on mannobiose, p-nitrophenyl-.beta.-D-mannoside, konjac glucomannan or guar **gum galactomannan**. The enzyme catalyzed a transglycosylation reaction.

1982

3/3,AB/50 (Item 50 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

03601466 BIOSIS NO.: 000074017043
RHEOLOGY OF GALACTO MANNAN SOLUTIONS COMPARATIVE STUDY OF GUAR **GUM** AND LOCUST BEAN **GUM**
AUTHOR: DOUBLIER J L; LAUNAY B
AUTHOR ADDRESS: FOOD SCIENCE DEP., ENSIA, 1 AVENUE DES OLYMPIADES, 91305, MASSY FRANCE .
JOURNAL: J TEXTURE STUD 12 (2). 1981 (RECD. 1982). 151-172. **1981**

FULL JOURNAL NAME: Journal of Texture Studies
CODEN: JTXSB
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The rheological properties of several samples of guar **gum** and locust bean **gum**, characterized by light scattering and intrinsic visocity measurements, were studied. The flow curves of concentrated solutions were obtained with a cone-plate viscometer and their viscoelastic prperties were measured with a concentric hemispheres viscoelastometer. The 2 flow-units Ree-Eyring model and the Cross equation gave a good fit to the experimental flow curves. The zero shear rate viscosity and the relaxation time of the Ree-Eyring model depend mainly on the reduced concentration c [.eta.]. This result and the viscoelastic properties, indicate that entanglements play a dominant role in concentrated solutions. From a practical viewpoint, it is possible to predict the flow curve of a **galactomannan** solution at any concentration if the intrinsic viscosity of the sample is known, but there are secondary differences in the flow parameters, mainly in the relaxation time, which are not ascribed to [.eta.]. It is hypothesized that these differences are due to the mean branching degree rather than to the botanical origin. As, in solution, the smoothest **galactomannan** macromolevules are more probably aggregated than isolated, further work should aim at establishing the relationships between aggregate formation and degree of branching.

1981

3/3,AB/51 (Item 51 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

03531631 BIOSIS NO.: 000073034711
BETA MANNANASE OF BACTERIA ISOLATED FROM NATURAL HABITATS
AUTHOR: ARAKI T; KITAMIKADO M
AUTHOR ADDRESS: DEP. FISHERIES, FACULTY OF AGRIC., KYUSHU UNIV., 46-4, HAKOZAKI, HIGASHI-KU, FUKUOKA 812, JPN.
JOURNAL: BULL JPN SOC SCI FISH 47 (6). 1981. 753-760. **1981**
FULL JOURNAL NAME: Bulletin of the Japanese Society of Scientific Fisheries
CODEN: NSUGA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The culture fluids of 117 bacterial strains isolated from natural habitats were assayed for .beta.-mannanase activity by using codium mannan as a substrate. The highest .beta.-mannanase productivity was detected in the strain F-25 of Aeromonas sp. isolated from the intestinal contents of freshwater fish, Salmo gairdneri. .beta.-Mannanase from the strain was induced enzyme. Konjac glucomannan and commercially available konjac powder were superior inducers. The .beta.-mannanase productivity of the strain was susceptible to the influence of culture temperature; the strain showed the highest .beta.-mannanase activity when incubated at 25.degree. C for 3 days, but hardly showed the activity at 37.degree. C. The culture fluid of Aeromonas sp. F-25 was separated into 2 fractions with .beta.-mannanase activity by DEAE-Sephadex A-50 column chromatography. One fraction eluted by a salt gradient contained an endo-.beta.-mannanase, which hydrolyzed codium mannan, coffee mannan, konjac glucomannan and guar **gum galactomannan** to give several mannooligosaccharides. The other fraction eluted through the column without adsorption contained an exo-.beta.-mannanase of novel type, which attacked codium mannan and coffee mannan to form only mannobiose but not konjac glucomannan and guar **gum galactomannan**.

1981

3/3,AB/52 (Item 52 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

03348393 BIOSIS NO.: 000072076497
STUDIES ON THE CHEMICAL PROPERTIES OF CROTALARIA-JUNCEA SEED **GUM**
AUTHOR: ZHAO X-Y; LI S-Y; WU Z-X; ZHAO Y-W; DENG Z-F; QU H
AUTHOR ADDRESS: NORTHWEST INST. BOT.
JOURNAL: ACTA BOT SIN 23 (2). 1981. 127-131. **1981**
FULL JOURNAL NAME: Acta Botanica Sinica
CODEN: CHWHA
RECORD TYPE: Abstract
LANGUAGE: CHINESE

ABSTRACT: C. juncea Linn. is an annual herbaceous **plant** of the Leguminosae. It is widely used as green manure in our country, because its seed contains 26.90% endosperm, of which more than 70% is **galactomannan**. It is also a kind of **plant** contained **gum** . The ratio between galactose and mannose is 1:2-3 in the **galactomannans**. The seed **gum** of the C. juncea in water will increase its solubility and viscosity as the temperature increases but when the temperature is increasing over 70.degree. C, it will cause the viscosity to decrease greatly. In the condition of alkaline medium, C. juncea seed **gum** solution with high viscosity can easily connect with borax to form gel. It is also used in the petroleum industry for having this good property. C. juncea seed **gum** may be a new source for the hydraulic fracturing fluids of hydrogel.

1981

3/3,AB/53 (Item 53 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

02956148 BIOSIS NO.: 000069064266
A COMPOSITIONAL STUDY OF PODS OF 2 VARIETIES OF MESQUITE PROSOPIS-GLANDULOSA PROSOPIS-VELUTINA
AUTHOR: BECKER R; GROSJEAN O-K
AUTHOR ADDRESS: WEST. REG. RES. CENT., US SCI. EDUC. ADM., BERKELEY, CALIF. 94710, USA.
JOURNAL: J AGRIC FOOD CHEM 28 (1). 1980. 22-25. **1980**
FULL JOURNAL NAME: Journal of Agricultural and Food Chemistry
CODEN: JAFCA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: The saccharide composition of the seeds and pericarp of honey and velvet mesquite were determined using gas chromatography and high-performance liquid chromatography. Sucrose was the major saccharide present, occurring mainly in the pericarp. Sucrose, raffinose, stachyose, inositol and a **galactomannan gum** were present in the seeds. Autolysis at pH 5.0 and 6.5 for 18 h, resulted in decreased sucrose, raffinose, stachyose and **gum** viscosity, while inositol increased. Proximate analysis for protein, fiber, fat and minerals gave generally expected results. .alpha.-Galactosidase, .beta.-mannosidase, invertase and phytase are present in the seeds. The pericarp contained invertase activity. No evidence of cyanogenic glycosides was detected.

1980

3/3,AB/54 (Item 54 from file: 5)

DIALOG(R)File 5:Biosis Previews(R)
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02932771 BIOSIS NO.: 000069040889
SEPARATION OF POLY PEPTIDE CHAINS OF RICIN AND THE INTERACTION OF THE A CHAIN WITH CIBACRON BLUE F-3GA
AUTHOR: APPUKUTTAN P S; BACHHAWAT B K
AUTHOR ADDRESS: INDIAN INST. EXP. MED., CALCUTTA, W. BENGAL 32, INDIA.
JOURNAL: BIOCHIM BIOPHYS ACTA 580 (1). 1979. 10-14. **1979**
FULL JOURNAL NAME: Biochimica et Biophysica Acta
CODEN: BBACA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Ricin is a toxic lectin of MW .apprx. 60,000, found in the seeds of the **plant** Ricinus communis. From ricin bound to the **galactomannan** guar **gum** in a column, the non-binding toxic A chain could be eluted by reduction with 2-mercaptoethanol, and later the B chain by lactose. The presence of a nucleotide-binding domain on the toxic chain A could be demonstrated from its interaction with the blue dye Cibacron Blue F3GA.

1979

3/3,AB/55 (Item 55 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2001 BIOSIS. All rts. reserv.

02686911 BIOSIS NO.: 000067074982
DIETARY FIBER AND BLOOD LIPIDS REDUCTION OF SERUM CHOLESTEROL IN TYPE II HYPER LIPIDEMIA BY GUAR **GUM**
AUTHOR: JENKINS D J A; LEEDS A R; SLAVIN B; MANN J; JEPSON E M
AUTHOR ADDRESS: RADCLIFFE INFIRM., OXFORD, ENGL., UK.
JOURNAL: AM J CLIN NUTR 32 (1). 1979. 16-18. **1979**
FULL JOURNAL NAME: American Journal of Clinical Nutrition
CODEN: AJCNA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Guar **gum**, a storage polysaccharide **galactomannan** [obtained from Cyamopsis tetragonolobus] and a form of dietary fiber, was administered to 10 patients with type II a or b hyperlipidemia for 2 wk. **Gum** (5 g) was given before each of 3 meals daily, either in a specially prepared soup or mixed with fruit juice or milk. No other deliberate change of diet was made. Three patients were taking 12-16 g/day of cholestyramine for more than 2 yr and one was taking 1000 mg of clofibrate daily. These drugs were continued throughout the trial. Serum cholesterol levels of all 10 patients were stable for 6-18 mo. before the trial at the start of which the mean level was 345 .+-. 15 mg/dl. After 2 wk of guar **gum** the mean was 308 .+-. 16 mg/dl, a fall of 10.6% ($P < 0.01$). Serum triglyceride was not changed significantly. Guar **gum**, which can be incorporated into foods, merits further study as a potential hypocholesterolemic agent.

1979

3/3,AB/56 (Item 56 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)
(c) 2001 BIOSIS. All rts. reserv.

02475541 BIOSIS NO.: 000066058088
ISOLATION CHARACTERIZATION ENZYMIC HYDROLYSIS OF PINEAPPLE **GUM**
AUTHOR: CHENCHIN K L; YAMAMOTO H Y

AUTHOR ADDRESS: DEP. FOOD SCI. TECHNOL., UNIV. HAWAII, 1920 EDMONSON RD., HONOLULU, HAWAII 968[redacted] USA.
JOURNAL: J FOOD SCI 43 (4). 1978 1261-1263. **1978**
FULL JOURNAL NAME: Journal of Food Science
CODEN: JFDSA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Pineapple **gum** was isolated and characterized. The **gum** was a cold-water soluble neutral polysaccharide composed predominantly of **galactomannans**. Solutions of pineapple **gum** formed viscous solutions which tended to foam. Studies on the enzymic hydrolysis showed that some commercial enzymes, specifically pectinases, cellulases and hemicellulases, were effective in degrading pineapple **gum**.

1978

3/3,AB/57 (Item 57 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

02467156 BIOSIS NO.: 000066049700
THE INFLUENCE OF SOWING DATES AND ROW SPACING PATTERNS ON THE PERFORMANCE OF 2 VARIETIES OF CLUSTER BEAN CYAMOPSIS-TETRAGONOLOBUS
AUTHOR: BAINS D S; DHILLON A S
AUTHOR ADDRESS: DEP. AGRON., PUNJAB AGRIC. UNIV., LUDHIANA, PUNJAB, INDIA.
JOURNAL: J RES PUNJAB AGRIC UNIV 14 (2). 1977 (RECD 1978) 157-161.
1977
FULL JOURNAL NAME: Journal of Research Punjab Agricultural University
CODEN: JRPUA
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: A study using 'Guara No. 2' and 'F.S. 277' cluster-bean was conducted under irrigated conditions during 1971-1972. The crop sown on July 6th produced significantly higher seed yield than that produced by the crop sown on July 20th and Aug. 3rd during both years. Both varieties gave similar seed yields; 'F.S. 277' contained 2.5% more **gum** [**galactomannan**] than 'Guara No. 2'. 'F.S. 277' matured about a week earlier. The spacing patterns of 30 .times. 22.5 cm and 45 .times. 15 cm produced higher seed yields than other patterns. For easy mechanical cultivation, a spacing of 45 .times. 15 cm can be adopted.

1977

3/3,AB/58 (Item 58 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

02198500 BIOSIS NO.: 000064041019
ISOLATION OF PEANUT LECTIN BY AFFINITY CHROMATOGRAPHY ON POLY ACRYLAMIDE ENTRAPPED GUAR BEADS AND POLY ACRYLAMIDE ALLYL ALPHA-D GALACTO PYRANOSIDE
AUTHOR: SUTOH K; ROSENFELD L; LEE Y C
JOURNAL: ANAL BIOCHEM 79 (1-2). 1977 329-337. **1977**
FULL JOURNAL NAME: Analytical Biochemistry
CODEN: ANBCA
RECORD TYPE: Abstract

ABSTRACT: Guar **gum** (**galactomannan**) was entrapped in polyacrylamide gel by bead polymerization. The gel beads were used in 1-step affinity column chromatography of peanut [Arachis hypogaea] lectin (specific for D-galactosyl residue). The lectin prepared with these gel beads was homogeneous by electrophoresis, either in the presence or

absence of sodium dodecyl sulfate. Another affinity gel prepared by copolymerization of allyl .alpha.-D-galactopyranoside and acrylamide was also useful in purification of the lectin.

1977

3/3,AB/59 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06865334 Genuine Article#: ZX592 Number of References: 44
Title: Structural aspects of the interaction of mannan-based polysaccharides with bacterial cellulose (ABSTRACT AVAILABLE)
Author(s): Whitney SEC; Brigham JE; Darke AH; Reid JSG; Gidley MJ (REPRINT)
Corporate Source: UNILEVER RES LABS,COLWORTH HOUSE/SHARNBROOK MK44 1LQ/BEDS/ENGLAND/ (REPRINT); UNILEVER RES LABS,/SHARNBROOK MK44 1LQ/BEDS/ENGLAND/; UNIV STIRLING,DEPT BIOL & MOL SCI/STIRLING FK9 4LA//SCOTLAND/
Journal: CARBOHYDRATE RESEARCH, **1998**, V307, N3-4 (FEB), P299-309
ISSN: 0008-6215 Publication date: 19980200
Publisher: ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND
Language: English Document Type: ARTICLE
Abstract: Interactions between cellulose and glucomannan/ **galactomannans** have been studied through molecular and ultrastructural analysis of composites formed by deposition of cellulose from Acetobacter aceti ssp.,xylinum into solutions containing either glucomannan or **galactomannans** of varying Man:Gal ratio.C-13 NMR suggests that unsubstituted mannan segments can bind to cellulose by undergoing a conformational transition to an extended 2-fold form. Konjac glucomannan induces a coalescence of cellulose fibrils and a dramatic reduction of crystallinity: low galactose **galactomannans** also show these trends. The inferred mannan/cellulose sandwich structure may underlie the densification processes which can accompany mannan-containing secondary cell wall formation. Medium galactose **galactomannans** additionally form cross-links of varying lengths between cellulose fibrils and show evidence for self-association. The presence of cellulose fibrils promotes network formation from **galactomannan** solutions under conditions where this would not normally occur. The principles of interaction between cellulose and mannan-based polymers at both molecular and ultrastructural levels are discussed in the context of **plant** cell wall design and assembly. (C) 1998 Elsevier Science Ltd. All rights reserved.

3/3,AB/60 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06632209 Genuine Article#: ZG020 Number of References: 39
Title: Isolation and characterization of an active mannanase producing anaerobic bacterium, Clostridium tertium KT-5A, from lotus soil (ABSTRACT AVAILABLE)
Author(s): Kataoka N; Tokiwa Y (REPRINT)
Corporate Source: MINIST INT TRADE & IND,AGCY IND SCI & TECHNOL, NATL INST BIOSCI & HUMAN TECHNOL, CHEM ECOL LAB/TSUKUBA/IBARAKI 305/JAPAN/ (REPRINT); MINIST INT TRADE & IND,AGCY IND SCI & TECHNOL, NATL INST BIOSCI & HUMAN TECHNOL, CHEM ECOL LAB/TSUKUBA/IBARAKI 305/JAPAN/; EBARA CORP,DEPT RES & DEV/FUJISAWA/KANAGAWA/JAPAN/
Journal: JOURNAL OF APPLIED MICROBIOLOGY, **1998**, V84, N3 (MAR), P 357-367
ISSN: 1364-5072 Publication date: 19980300

Publisher: BLACKWELL SCIENCE LTD, P O BOX 88, OSNEY MEAD, OXFORD, OXON, ENGLAND OX2 0NE
Language: English Document Type: ARTICLE
Abstract: Of 10 strains of mannanase-producing anaerobic bacteria isolated from soils and methanogenic sludges, Clostridium tertium KT-5A, which was isolated from lotus soil, produced high amounts of extracellular beta-1,4-mannanase. The isolate was an aerotolerant anaerobe without quinon systems; the cell growth cultivated with no addition of reducing agents was also stable. High yields of mannanase were obtained by inducing enzyme production with **galactomannan** guar **gum** and beef extract/peptone as carbon and nitrogen sources, respectively. Fermentation end products on **galactomannan** fermentation were formate, acetate, lactate, butyrate, carbon dioxide and hydrogen. The extracellular mannanase displayed high activity on **galactomannans** of locust bean **gum** galactose/mannose (G/M) ratio 1:4 and spine **gum** (G/M 1:3), but weak activity on guar **gum** **galactomannan** (G/M 1:2) and konjac glucomannan. As far as is known, this is the first report on the isolation of an active mannanase-producing anaerobic bacterium from natural environments.

3/3,AB/61 (Item 3 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06399913 Genuine Article#: YQ014 Number of References: 17
Title: Synergistic gelation of xanthan **gum** with locust bean **gum** : a rheological investigation (ABSTRACT AVAILABLE)
Author(s): Copetti G; Grassi M; Lapasin R; Pricl S (REPRINT)
Corporate Source: UNIV TRIESTE,DICAMP, DEPT CHEM ENVIRONM & RAW MAT ENGN, PIAZZALE EUROPA 1/I-34127 TRIESTE//ITALY/ (REPRINT); UNIV TRIESTE,DICAMP, DEPT CHEM ENVIRONM & RAW MAT ENGN/I-34127 TRIESTE//ITALY/
Journal: GLYCOCONJUGATE JOURNAL, **1997**, V14, N8, P951-961
ISSN: 0282-0080 Publication date: 19970000
Publisher: CHAPMAN HALL LTD, 2-6 BOUNDARY ROW, LONDON, ENGLAND SE1 8HN
Language: English Document Type: ARTICLE
Abstract: Many industrial products often include in their formulation more than one polysaccharide to achieve the desired properties during and after processing. Many such mixed systems behave as would be expected from the known properties of the individual polymers. In others, however, their properties are superior to those of either component alone, or may be qualitatively different. In many polysaccharide systems, the combination of a gelling polymer with a nongelling one gives rise to strong synergistic effects, as a consequence of interaction among different chain polymers and formation of mixed junction zones.

Probably, the most exploited mixed gels, especially by the food industry, are those involving the microbial polysaccharide xanthan **gum** (XG) and the **plant galactomannans**, like locust bean **gum** (LBG). Concentrated aqueous systems of LBG and XG display quite different rheological properties: the former show the behaviour typical of hyperentangled macromolecular solutions, whereas the flow and viscoelastic properties of XG systems correspond to those of tenuous, weak-gel networks. Interestingly, when mixed together these macromolecules interact to forma firm, thermoreversible gel with synergistic effects.

In the present paper we report the results of a thorough investigation of both polymer concentration and temperature effects on the rheological properties of mixed LBG-XG systems in 20 mM KCl under continuous and oscillatory flow conditions.

Under continuous shear at 25 degrees C, pure LBG shows the flow

properties of a macromolecular solution, with a shear-thinning behaviour and a Newtonian region at low shear rates, whereas the rheological behaviour of XG and all LX mixed systems is that typical of weak-gels. Furthermore, in the mixed systems the viscosity values do not increase monotonically with increasing xanthan concentration, but the synergistic effect has a maximum in accordance with the XG: LBG ratio 1 : 1. As the temperature is increased from 25 degrees C to 85 degrees C, whilst the LBG system do not show any qualitative change but there is only a parallel, downward shift of viscosity values, in the case of xanthan there is a dramatic change in the corresponding curve profiles, due to the thermally induced helix-coil conformational transition.

The differences in the rheological behaviour of the systems examined can be better shown through dynamic tests at 25 degrees C. The strain sweeps performed at constant frequency of oscillation reveal that the mixed systems show higher sensitivity to strain amplitude, and lower strain values must be attained to ensure linear viscoelastic properties. The mechanical spectra clearly show the influence of composition on the viscoelastic properties of these biopolymer systems. All LX systems show the mechanical spectra typical of polysaccharide gels: G' is always much greater than G'' and is nearly independent of the applied frequency over a wide frequency range. In addition, the marked gap between the elastic responses of the pure LBG and the LX 1 : 3 systems demonstrates the strong effect of the initial addition of xanthan to the pure LBG, especially in the low frequency range, whereas the highest synergistic effect is attained for the LX 1 : 1 system. A comprehensive description of the frequency dependence of both moduli can be suitably obtained through the four-parameter Friedrich model, which belongs to the class of fractional derivative approaches viscoelasticity.

The same thermal effect is observed for the XG and all LX mixed systems considered, indicating a progressive change from the behaviour of a typical gel to that of a quasi-solution state, when temperature is increased from 25 degrees C to 85 degrees C. Among all mixed systems, the LX 1 : 1 has the highest values of the moduli at any temperature considered, and is characterized by the highest gel-sol transition temperature. In all LX systems, the temperature sweeps show that the gel-sol transition follows a two-step process, characterized by the presence of two inflection points in the relevant G* vs T curves. The first step could be reasonably ascribed to the melting process of the mixed xanthan-locust bean **gum** junction zones, in which the association of XG with LBG is occurring with the xanthan component in its fully ordered helical conformation. The second step, occurring at higher temperature, can be attributed to the conformational transition of the xanthan chains.

All the experimental results from this study seem to suggest the coexistence, within the structure of these mixed gels, of both heterotypic LBG-XG and homotypic XG-XG junction zones, in which the xanthan chains retain their ordered helical conformation, thus supporting the original model proposed by Dea and Morris.

06373084 Genuine Article#: YN110 Number of References: 31
Title: Solution characteristics of the xyloglucan extracted from Detarium senegalense Gmelin (ABSTRACT AVAILABLE)
Author(s): Wang Q; Ellis PR; RossMurphy SB (REPRINT) ; Burchard W
Corporate Source: UNIV LONDON KINGS COLL,DIV LIFE SCI, BIOPOLYMERS GRP, CAMPDEN HILL RD/LONDON W8 7AH//ENGLAND/ (REPRINT); UNIV LONDON KINGS COLL,DIV LIFE SCI, BIOPOLYMERS GRP/LONDON W8 7AH//ENGLAND/; UNIV

FREIBURG,INST MAKROMOL CHEM/D-79104 FREIBURG//GERMANY/
Journal: CARBOHYDRATE P[redacted]MERS, **1997**, V33, N2-3 (JUN-JUL[redacted]P115-124
ISSN: 0144-8617 Publication date: 19970600
Publisher: ELSEVIER SCI LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD, OXON, ENGLAND OX5 1GB
Language: English Document Type: ARTICLE
Abstract: The macromolecular solution properties of detarium xyloglucan, a seed extract of the **plant** Detarium senegalense Gmelin, were investigated by steady and dynamic shear rheometry, and static light scattering. The main polysaccharide of detarium **gum** is a xyloglucan, consisting of a cellulosic backbone with single-unit alpha-D-xylopyranosyl substituents attached to carbon-6 of the glucosyl residues, and with some of the xylose residues further substituted at carbon-2 by beta-D-galactopyranosyl residues. In this paper, all the semi-dilute solution characterisation work seems to be very largely consistent with much of the published data for the rheology of other polysaccharide solutions and suggests that detarium **gum** is a well behaved linear polymer entanglement network system. It has been established that when C < similar to C* eta(sp)proportional to C1.3, while at C > similar to 2C*, eta(sp)proportional to C-4.0. The static light scattering technique was successfully applied to examine the molecular weight and architecture of the detarium xyloglucan macromolecule by employing pressure heating treatment of the samples. The scattering profile for detarium xyloglucan is not consistent with that of a linear macromolecule, but instead strongly suggests a small degree of long chain branching. The implications of this finding are discussed. (C) 1997 Elsevier Science Ltd.

3/3,AB/63 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06034839 Genuine Article#: XQ942 Number of References: 15
Title: **Galactomannan** from the seeds of Mimosa scabrella: A scale-up process (ABSTRACT AVAILABLE)
Author(s): Ganter JLMS (REPRINT) ; Cardoso ATM; Kaminski M; Reicher F
Corporate Source: UNIV FED PARANA,DEPT BIOCHEM, BP 19046/BR-81531990 CURITIBA/PARANA/BRAZIL/ (REPRINT); UNIV FED PARANA,DEPT CHEM TECHNOL/BR-81531990 CURITIBA/PARANA/BRAZIL/
Journal: INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, **1997**, V 21, N1-2 (AUG), P137-140
ISSN: 0141-8130 Publication date: 19970800
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English Document Type: ARTICLE
Abstract: In view of the wide industrial applications of **galactomannans** as a thickening agent, those of Mir??osa scabrella (bracatinga), a leguminous tree abundant in Southern Brazil, are under investigation. Seeds of bracatinga were processed on a pilot **plant** scale in order to obtain its **galactomannan**. The process consisted of successive milling, enzyme inactivation, aqueous extraction, precipitation of polysaccharide, and drying and milling. The product was obtained in 20% yield, with characteristics similar to those obtained on the laboratory scale, namely mannose:galactose ratio (M:G) 1.1:1.0 and intrinsic viscosity. Considering the seed availability in the metropolitan regions of Curitiba, it should be possible to obtain 3000 ton/year of this polysaccharide. (C) 1997 Elsevier Science B.V.

3/3,AB/64 (Item 6 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

05809012 Genuine Article#: WY998 Number of References: 35

Title: Phase separation of **plant** cell wall polysaccharides and its implications for cell wall assembly (ABSTRACT AVAILABLE)
Author(s): MacDougall AJ (REPRINT) ; Rigby NM; Ring SG
Corporate Source: AFRC,INST FOOD RES, NORWICH LAB, DEPT BIOCHEM, NORWICH RES PK/NORWICH NR4 7UA/NORFOLK/ENGLAND/ (REPRINT)
Journal: PLANT PHYSIOLOGY, **1997**, V114, N1 (MAY), P353-362
ISSN: 0032-0889 Publication date: 19970500
Publisher: AMER SOC PLANT PHYSIOLOGISTS, 15501 MONONA DRIVE, ROCKVILLE, MD 20855
Language: English Document Type: ARTICLE
Abstract: Concentrated binary mixtures of polymers in solution commonly exhibit immiscibility, resolving into two separate phases each of which is enriched in one polymer. The **plant** cell wall is a concentrated polymer assembly, and phase separation of the constituent polymers could make an important contribution to its structural organization and functional properties. However, to our knowledge,there have been no published reports of the phase behavior of cell wall polymers, and this phenomenon is not included in current cell wall models. We fractionated cell walls purified from the pericarp of unripe tomatoes (Lycopersicon esculentum) by extraction with cyclohexane diamine tetraacetic acid (CDTA), Na2CO3, and KOH and examined the behavior of concentrated mixtures. Several different combinations of fractions exhibited phase separation. Analysis of coexisting phases demonstrated the immiscibility of the esterified, relatively unbranched pectic polysaccharide extracted by CDTA and a highly branched, de-esterified pectic polysaccharide present in the 0.5 N KOH extract. Some evidence for phase separation of the CDTA extract and hemicellulosic polymers was also found. We believe that phase separation is likely to be a factor in the assembly of pectic polysaccharides in the cell wall and could, for example, provide the basis for explaining the formation of the middle lamella.

3/3,AB/65 (Item 7 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

05594703 Genuine Article#: WJ670 Number of References: 32
Title: The correlation between adhesion of schizophyllan to yeast glucan and its effect on regeneration of yeast protoplast (ABSTRACT AVAILABLE)
Author(s): Hisamatsu M (REPRINT) ; Mishima T; Teranishi K; Yamada T
Corporate Source: MIE UNIV,FAC BIORESOURCES, DEPT AGR CHEM, 1515 KAMIHAMA/TSU/MIE 514/JAPAN/ (REPRINT)
Journal: CARBOHYDRATE RESEARCH, **1997**, V298, N1-2 (FEB 20), P117-121
ISSN: 0008-6215 Publication date: 19970220
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS
Language: English Document Type: ARTICLE
Abstract: Schizophyllan, a water-soluble (1 --> 3)-beta-D-glucan with a triple-helical conformation, adheres to yeast glucan and curdlan gel. As the molecular weight of schizophyllan decreases, both its adhesion to the water-insoluble glucans and its ability to promote the regeneration of yeast protoplasts are reduced. Therefore, we hypothesize that schizophyllan can surround yeast protoplasts by adhering to a fragment of yeast glucan remaining or/and resynthesized on the cell surface and that this encapsulation allows regeneration of the protoplast cells to occur at very high frequency. (C) 1997 Elsevier Science Ltd.

3/3,AB/66 (Item 8 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

05468898 Genuine Article#: WB119 Number of References: 76

Title: A PHYSICOCHEMICAL PERSPECTIVE OF **PLANT** POLYSACCHARIDES IN RELATION TO GLUCOSE-[redacted]ORPTION, INSULIN-SECRETION AN[redacted]E ENTEROINSULAR AXIS
Author(s): ELLIS PR; RAYMENT P; WANG Q
Corporate Source: UNIV LONDON KINGS COLL,DIV LIFE SCI,BIOPOLYMERSGRP,CAMPDEN HILL RD,KENSINGTON CAMPUS/LONDON W87AH//ENGLAND/
Journal: PROCEEDINGS OF THE NUTRITION SOCIETY, **1996**, V55, N3 (NOV), P 881-898
ISSN: 0029-6651
Language: ENGLISH Document Type: ARTICLE

3/3,AB/67 (Item 9 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

04819879 Genuine Article#: UK105 Number of References: 30
Title: INFLUENCE OF ACYL SUBSTITUENTS ON THE INTERACTION OF XANTHANS WITH **PLANT** POLYSACCHARIDES (Abstract Available)
Author(s): ROSSMURPHY SB; SHATWELL KP; SUTHERLAND IW; DEA ICM
Corporate Source: UNIV LONDON KINGS COLL,DIV LIFE SCI,CAMPDEN HILL RD/LONDON W8 7AH//ENGLAND/; SCH AGR,DEPT MICROBIOL/EDINBURGH EH9 3JG/MIDLOTHIAN/SCOTLAND/; FOOD RES ASSOC/LEATHERHEAD KT22 7RY/SURREY/ENGLAND/
Journal: FOOD HYDROCOLLOIDS, **1996**, V10, N1 (JAN), P117-122
ISSN: 0268-005X
Language: ENGLISH Document Type: ARTICLE
Abstract: Small deformation rheology and measurement of critical gelling concentrations has been carried out to study the interactions between solutions of microbially cultured variant xanthans and chemically modified samples of this polymer, with three **plant** polysaccharides, guar **gum**, locust bean **gum** and konjac mannan. Using these methods we have been able to assess the influence of the acyl substituents upon the interaction behaviour.

3/3,AB/68 (Item 10 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

03318413 Genuine Article#: NW562 Number of References: 149
Title: STRUCTURE-FUNCTION-RELATIONSHIPS IN MICROBIAL EXOPOLYSACCHARIDES (Abstract Available)
Author(s): SUTHERLAND IW
Corporate Source: UNIV EDINBURGH,INST CELL & MOLEC BIOL/EDINBURGHEH9 3JH/MIDLOTHIAN/SCOTLAND/
Journal: BIOTECHNOLOGY ADVANCES, **1994**, V12, N2, P393-448
ISSN: 0734-9750
Language: ENGLISH Document Type: REVIEW
Abstract: Sufficient well-characterized microbial exopolysaccharides are now available to permit extensive studies on the relationship between their chemical structure and their physical attributes. This is seen even in homopolysaccharides with relatively simple structures but is more marked when greater differences in structure exist, as are found in several heteropolysaccharides. The specific and sometimes unique properties have, in the case of several of these polymers, provided a range of commercial applications. The existence of ''families'' of structurally related polysaccharides also indicates the specific role played by certain structures and substituents; the characteristics of several of these microbial polysaccharide families will be discussed here. Thus, microbial exopolysaccharides frequently carry acyl groups which may profoundly affect their interactive properties although these groups often have relatively little effect on solution viscosity. Xanthan with or without acylation shows marked differences in

synergistic gelling with **plant** gluco- and galacto-mannans, although the polysaccharides with different acylation patterns show similar viscosity. Similarly ''gelrite'' from the bacterium originally designated as Auromonas (Pseudomonas) elodea is of greater potential value after deacetylation, when it provides a valuable gelling agent, than it is as a viscosifier in the natural acylated form. The Klebsiella type 54 polysaccharide only forms gels when it, too, has been chemically deacetylated to give a structure equivalent to the Enterobacter XM6 polymer. Both these polysaccharides form gels due to the enhanced interaction with cations following deacylation and to the conformation adopted after removal of the acyl groups. Recent work in our laboratory suggests that deacetylation of certain bacterial alginates also significantly increases ion binding by these polysaccharides, making them more similar in their properties to algal alginates even although the alginates from some Pseudomonas species lack poly-L-guluronic acid sequences. The existence within families of polysaccharides of types in which monosaccharides are altered within a specific structure, or with varying side-chains, also gives an indication of the way in which such substituents affect the physical properties of the polymers in aqueous solution.

3/3,AB/69 (Item 11 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

03151023 Genuine Article#: NG089 Number of References: 33
Title: GALACTOSE-BINDING T-CELL MITOGENIC LECTIN FROM THE SEEDS OF TELFAIRIA-OCCIDENTALIS (Abstract Available)
Author(s): TOGUN RA; ANIMASHAUN T; KAY JE; ABODERIN AA
Corporate Source: UNIV LONDON IMPERIAL COLL SCI TECHNOL & MED,DEPT BIOL,PRINCE CONSORT RD/LONDON SW7 2BB//ENGLAND/; OBAFEMI AWOLOWO UNIV,DEPT BIOCHEM/IFE//NIGERIA/; NATL INST MED RES/LONDON NW7 1AA//ENGLAND/; UNIV SUSSEX,SCH BIOL SCI/BRIGHTON BN1 9QR/E SUSSEX/ENGLAND/
Journal: PHYTOCHEMISTRY, **1994**, V35, N5 (MAR), P1125-1130
ISSN: 0031-9422
Language: ENGLISH Document Type: ARTICLE
Abstract: The seed extract of the fluted pumpkin, Telfairia occidentalis (Hook, F.), agglutinates erythrocytes and is mitogenic for murine T-lymphocytes. An abundant galactose-binding lectin, T. occidentalis agglutinin, was purified from the seeds. The lectin is an N-glycosylated hexamer with three pairs of disulphide-bonded subunits and a M, of 180 000. Human and porcine lymphocytes are stimulated by T. occidentalis agglutinin and this is the first known example of a mitogenic lectin from the Cucurbitaceae. Asialoproteins containing biantennary or triantennary N-glycan chains, and **plant galactomannans** are bound by T. occidentalis agglutinin.

3/3,AB/70 (Item 12 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

03073688 Genuine Article#: NA318 Number of References: 41
Title: SOLUTION PROPERTIES OF LEVAN POLYSACCHARIDE FROM PSEUDOMONAS-SYRINGAE PV PHASEOLICOLA, AND ITS POSSIBLE PRIMARY ROLE AS A BLOCKER OF RECOGNITION DURING PATHOGENESIS (Abstract Available)
Author(s): KASAPIS S; MORRIS ER; GROSS M; RUDOLPH K
Corporate Source: CRANFIELD UNIV,SILSOE COLL,DEPT FOOD RES & TECHNOL/SILSOE MK45 4DT/BEDS/ENGLAND/; CRANFIELD UNIV,SILSOE COLL,DEPT FOOD RES & TECHNOL/SILSOE MK45 4DT/BEDS/ENGLAND/; UNIV GOTTINGEN,INST PFLANZENPATHOL & PFLANZENSCHUTZ/W-3400 GOTTINGEN//GERMANY/
Journal: CARBOHYDRATE POLYMERS, **1994**, V23, N1, P55-64
ISSN: 0144-8617

Language: ENGLISH Document Type: ARTICLE
Abstract: Bacterial levan, a highly branched, high molecular weight polymer of fructose, was purified from culture supernatants of Pseudomonas syringae pv. phaseolicola grown in a liquid high-sucrose medium, and the predominance of beta-(2 --> 6) linkages was confirmed by C-13 NMR. The solution properties of this material resembled those of disordered linear polysaccharides in the response to low-amplitude oscillatory shear (frequency dependence of G' and G''); the absence of any detectable conformational change with temperature (as monitored by optical rotation); close superposition of steady-shear viscosity (eta) and complex dynamic viscosity (eta*) at equivalent values of shear-rate (gamma/s(-1)) and frequency (omega/rad s(-1)); a similar form of shear-thinning (giving linear plots of eta versus eta gamma(0.76)); and the onset of semi-dilute behaviour at a closely comparable degree of space-occupancy (c[eta] approximate to 3.6). The intrinsic viscosity, however, was unusually low ([eta] approximate to 0.17 dl g(-1)) and the concentration dependence of 'zero-shear' viscosity in the semi-dilute regime unusually high (eta(0) similar to c(9.3)), as anticipated from the densely packed, branched molecular structure.

Solutions of levan and pectin, matched to approximately the same initial viscosity, showed a substantial reduction in viscosity when mixed. Similar behaviour was observed for mixed solutions of levan with locust bean **gum** (LBG), chosen for its structural similarity to cellulose and hemicelluloses of the **plant** cell wall. Viscosity reduction was eliminated at low concentrations (indicating that it does not arise from heterologous association), but became very pronounced at high concentrations, and was then accompanied by resolution into levan-rich and LBG-rich solution phases. This evidence of strong thermodynamic incompatibility and exclusion behaviour with (1 --> 4)-linked **plant** polysaccharides suggests that the primary role of levan during pathogenesis may be as a barrier to intimate morphological contact (recognition) between **plant** cell walls and those of the parasite, thus inhibiting initiation of a hypersensitive response by the host.

3/3,AB/71 (Item 13 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

02988706 Genuine Article#: MU591 Number of References: 30
Title: IMMUNOHISTOCHEMICAL STUDIES ON LOCALIZATION OF THE EXTRACELLULAR POLYSACCHARIDE PRODUCED BY XANTHOMONAS-ORYZAE PV ORYZAE IN INFECTED RICE LEAVES (Abstract Available)
Author(s): WATABE M; YAMAGUCHI M; KITAMURA S; HORINO O
Corporate Source: KYOTO PHARMACEUT UNIV,FAC AGR,SAKYO KU,SHIMOGAMA NAKARAGI CHO/KYOTO 606//JAPAN/
Journal: CANADIAN JOURNAL OF MICROBIOLOGY, **1993**, V39, N12 (DEC), P 1120-1126
ISSN: 0008-4166
Language: ENGLISH Document Type: ARTICLE
Abstract: An antibody reacting with extracellular polysaccharide from Xanthomonas oryzae pv. oryzae was used to detect the extracellular polysaccharide in infected leaf tissues of rice **plants** (Oryzae sativa cv. IR24) by immunofluorescence and immunoelectron microscopy. Using extracellular polysaccharide as a hapten and bovine serum albumin as a carrier, an extracellular polysaccharide - bovine serum albumin conjugate was prepared. After a rabbit was immunized against the conjugate, an antibody reacting with extracellular polysaccharide from X. oryzae pv. oryzae was isolated and purified. Using ELISA, the antibody was capable of detecting extracellular polysaccharide at concentrations above 0.1 mu g/mL. Immunofluorescent antibody staining of infected rice leaves showed that extracellular polysaccharide produced by X. oryzae pv. oryzae was distributed in both xylem vessels

and transverse veins but not in either sieve tubes or mesophyll tissues. This demonstrates that the distribution of extracellular polysaccharide coincided with that of bacteria in the infected leaf tissues. Immunoelectron microscopy showed that localization of extracellular polysaccharide was restricted to the area close to bacterial cells. The amount of extracellular polysaccharide may not be enough to plug xylem vessels of rice leaves infected with X. oryzae pv. oryzae.

3/3,AB/72 (Item 14 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

02953632 Genuine Article#: MU971 Number of References: 37
Title: XANTHAN-LIKE WEAK GEL RHEOLOGY FROM DISPERSIONS OF ISPAGHULA SEED HUSK (Abstract Available)
Author(s): HAQUE A; RICHARDSON RK; MORRIS ER; DEA ICM
Corporate Source: CRANFIELD UNIV,SILSOE COLL,DEPT FOOD RES & TECHNOL/BEDFORD MK45 4DT//ENGLAND/; CRANFIELD UNIV,SILSOE COLL,DEPT FOOD RES & TECHNOL/BEDFORD MK45 4DT//ENGLAND/; LEATHERHEAD FOOD RES ASSOC/LEATHERHEAD KT22 7RY/SURREY/ENGLAND/
Journal: CARBOHYDRATE POLYMERS, **1993**, V22, N4, P223-232
ISSN: 0144-8617
Language: ENGLISH Document Type: ARTICLE
Abstract: Dispersions of isabgol, the milled seed husk from **Plantago** ovata Forsk (alternatively known as ispaghula), show 'weak-gel' properties broadly similar to those of xanthan and related polysaccharides with rigid, ordered structures in solution. The origin of this behaviour is attributed to tenuous association of fibrillar assemblies visualised by light microscopy. The network structure is retained to approximately 80-degrees-C, but decreases steeply at higher temperatures. The melting process is accompanied by a sharp change in optical rotation of the extracted polysaccharide component of isabgol. An earlier change in optical rotation at lower temperature is tentatively attributed to conformational rearrangement of xylan chains within an ordered, intermolecular structure. Aqueous solutions of the extracted polysaccharide form gels which gradually contract on prolonged storage, consistent with progressive re-formation of the fibrillar structure seen for intact isabgol. Loss of gel-like character in isabgol dispersions occurs over the same temperature range as thermogelation of hydroxypropylmethylcellulose, suggesting opportunities for combined use of the two materials as a substitute (or supplement) for gluten in baked products.

3/3,AB/73 (Item 15 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

01177299 Genuine Article#: GB858 Number of References: 55
Title: STRUCTURE AND SOLUTION PROPERTIES OF TAMARIND-SEED POLYSACCHARIDE (Abstract Available)
Author(s): GIDLEY MJ; LILLFORD PJ; ROWLANDS DW; LANG P; DENTINI M; CRESCENZI V; EDWARDS M; FANUTTI C; REID JSG
Corporate Source: UNILEVER RES LABS,COLWORTH HOUSE/SHARNBROOK MK44 1LQ/BEDS/ENGLAND/; UNIV ROME LA SAPIENZA,DIPARTIMENTO CHIM/I-00185ROME//ITALY/; UNIV STIRLING,SCH MOLEC & BIOL SCI/STIRLING FK94LA//SCOTLAND/
Journal: CARBOHYDRATE RESEARCH, **1991**, V214, N2, P299-314
Language: ENGLISH Document Type: ARTICLE
Abstract: The major polysaccharide in tamarind seed is a galactoxyloglucan for which the ratios galactose:xylose:glucose are 1:2.25:2.8. A minor polysaccharide (2-3%) contains branched (1 -->
5)-alpha-L-arabinofuranan and unbranched (1 -->

4)-beta-D-galactopyranan features. Small-angle X-ray scattering experiments gave values for the cross-sectional radius of the polymer in aqueous solution that were typical of single-stranded molecules. Marked stiffness of the chain (C infinity 110) was deduced from static light-scattering studies and is ascribed partially to the restriction of the motion of the (1 --> 4)-beta-D-glucan backbone by its extensive (approximately 80%) glycosylation. The rigidity of the polymer caused significant draining effects, which heavily influenced the hydrodynamic behaviour. The dependence of "zero-shear" viscosity on concentration was used to characterise "dilute" and "semi-dilute" concentration regimes. The marked dependence on concentration in the "semi-dilute" region was similar to that for other stiff neutral polysaccharide systems, ascribed to "hyper-entanglements", and it is suggested that these may have arisen through a tenuous alignment of stiffened chains.

3/3,AB/74 (Item 1 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03854550 CAB Accession Number: 20000606930
Starch-**gum** blends as paper additives.
Pamplona, B. S.; Palanginan, I. I.; Dionglay, M. S. P.
Chemistry and Chemical Processing Section, FPRDI-DOST, College, Laguna 4031, Philippines.
FPRDI Journal vol. 23 (2): p.77-88
Publication Year: 1997, publ. 1999
ISSN: 0115-0456 --
Language: English
Document Type: Journal article
Native cassava (Manihot esculenta) starch to ipil-ipil (Leucaena leucocephala) **gum** mass ratios of 7:3 (mix 1), 8:2 (mix 2) and 9:1 (mix 3) were prepared and added to papermaking chemicals and their performances as beater additives tested on commercial pulp. The blends had the following properties: physical - free-following colloidal suspension with no surface film or gel formation upon cooking and cooling, fluidity of 726 sec. at 25 deg C (mix 1), light orange, pH 6; chemical composition (mix 1) - 0.76% ash, 9.13% crude protein, 3.45% crude fibber and 78.88% nitrogen-free extract. The IR spectra showed strong absorption bands characteristics of both starch and **galactomannan** . Separate applications of all three mixes at 1% dosage exhibited equivalent strength properties in handsheets made from mill sack paper furnish, consisting of carton waste and unbleached kraft pulp at pH 4.8. Significantly higher burst, tensile and tear properties were noted at pH 7 and 8 for mixes 1 and 2. The close association of the starch-**gum**-cellulose molecules through hydrogen-bonding could have effected an increase in the strength properties of the handsheets at neutral and near alkaline pH. 22 ref.

3/3,AB/75 (Item 2 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03603855 CAB Accession Number: 980310379
A neutral seed **gum** from Abutilon indicum.
Vandana Singh; Mishra, U. C.; Khare, G. C.; Gupta, P. C.
Department of Chemistry, University of Allahabad, Allahabad 211 002, UP, India.
Carbohydrate Polymers vol. 33 (2/3): p.203-205
Publication Year: 1997
ISSN: 0144-8617 --
Language: English
Document Type: Journal article
A water-soluble **galactomannan** was isolated from the seeds of Abutilon indicum and its structure was investigated. It contained

D-galactose and D-mannose in molar ratio 2:3. Acid-catalysed fragmentation, periodate oxidation and methylation showed that the seed-**gum** has a branched structure consisting of a linear chain of beta -D(1 right arrow 4)-linked mannopyranosyl units, some of which are substituted at O-6 by two alpha -D(1 right arrow 6) galactopyranosyl units, mutually linked glycosidically as end groups. 22 ref.

3/3,AB/76 (Item 3 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03603256 CAB Accession Number: 980309780
Recrystallization in sugar/stabilizer solutions as affected by molecular structure.
Sutton, R. L.; Cooke, D.; Russell, A.
Unilever Research, Colworth Laboratory, Colworth House, Sharnbrook, Bedfordshire, MK44 1LQ, UK.
Journal of Food Science vol. 62 (6): p.1145-1149
Publication Year: 1997
ISSN: 0022-1147 --
Language: English
Document Type: Journal article
Rates of ice recrystallization from 40% fructose solutions were measured in the presence of various concentrations of different polysaccharides (native, fractionated and enzyme-modified **galactomannan** gums), demonstrating the inhibition of ice recrystallization by gums in relation to their concentration and galactose:mannose ratio. With locust bean **gum** , the concentration dependence of inhibition ceased above approx equal to 0.3% w/w. With enzyme-modified guars, the degree of galactose substitution was the dominant factor in the extent of inhibition by a **galactomannan** ; the fine structure of the substituents were less important. Where the galactose content of comparable polysaccharides was similar, the fine structure became dominant. The influence of sugar size on ice recrystallization was also investigated, using solutions of 40% fructose, 46.1% sucrose, 49% maltose, 59% maltotriose and 61.7% maltotetraose; these concentrations were chosen to give the same ice content (26%) when frozen at -15 deg . Increasing solute MW resulted in slower recrystallization, and the crystal shape was the same with different sugars; recrystallization was also much slower with 40% sucrose than with 40% fructose. Stronger inhibition by sucrose than by maltose is presumably due to the molecular conformations interacting differently with ice crystal faces. The observed rates appeared to follow Williams-Landell-Ferry kinetics. The relevance to stabilization of ice cream is indicated. 32 ref.

3/3,AB/77 (Item 4 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03340336 CAB Accession Number: 971402590
Wheat bread supplemented with depolymerized guar **gum** reduces the plasma cholesterol concentration in hypercholesterolemic human subjects.
Blake, D. E.; Hamblett, C. J.; Frost, P. G.; Judd, P. A.; Ellis, P. R.
Division of Life Sciences, King's College London, Campden Hill Road, London W8 7AH, UK.
American Journal of Clinical Nutrition vol. 65 (1): p.107-113
Publication Year: 1997
ISSN: 0002-9165 --
Language: English
Document Type: Journal article
The effect of depolymerized guar **galactomannan** on fasting plasma cholesterol and triacylglycerol concentrations in healthy subjects with moderately increased plasma cholesterol concentrations (5.2-8.0

mmol/litre) was evaluated. This study was designed as a randomized, double-blind crossover [redacted] two 3-week feeding periods separated by a 4-week washout period. Control and guar wheat breads were prepared by a commercial bread-making process. Subjects (n=11;) were asked to replace their normal bread with that provided, receiving control bread for one 3-week period and guar bread for the other period, without altering their baseline diet. Subjects recorded their intake of foods for 6 consecutive days on 3 occasions during the study. Fasting venous blood samples (10 ml) were taken from subjects on 2 consecutive mornings at the start and end of each feeding period. No significant changes in body weight or dietary intake were recorded in the control and guar bread periods. There was a significant reduction (10%) in total plasma cholesterol concentration after the guar treatment (P<0.001), mainly because of a reduction in the LDL-cholesterol fraction. No changes in plasma HDL cholesterol or triacylglycerol concentrations were seen. The cholesterol-lowering effect of partly depolymerized guar **gum** appears to be of a magnitude similar to that of high-molecular-weight guar **gum** used in earlier studies. 44 ref.

3/3,AB/78 (Item 5 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03149928 CAB Accession Number: 951414842
Utilization of tropical biomass resources. 1. Effect of **galactomannan** from Leucaena leucocephala de Wit seed to cholesterol-lowering in rats.
Pakdee, P.; Kinjo, K.; Tako, M.; Hongo, F.; Tomita, Y.; Yaga, S.
College of Agriculture, University of Ryukyus, Nishihara-cho, Okinawa, 903-01, Japan.
Japanese Journal of Tropical Agriculture vol. 39 (1): p.47-53
Publication Year: 1995
ISSN: 0021-5260 --
Language: English Summary Language: japanese
Document Type: Journal article
The effect of **galactomannan** extracted from the seeds of Leucaena leucocephala on serum and liver cholesterol and on digestive organs was studied in Wistar rats, given a control diet, a diet with 2 and 5% **galactomannan** or 5% guar **gum** . Total serum cholesterol and total liver cholesterol concentrations were significantly lower in rats fed on **galactomannan** from L. leucocephala seeds or guar **gum** than those given a fibre-free diet + cholesterol. Serum triacylglycerol, serum phospholipid and serum HDL were not different, but serum VLDL + LDL cholesterol was markedly decreased. Relative liver weight was significantly lower in rats fed on diets containing water-soluble polysaccharides. The length and weight of the small intestine plus the large intestine were higher in rats given water-soluble polysaccharide. The length of the small intestine was greater in rats fed on diets containing polysaccharide, the diet containing 5% L. leucocephala seed **galactomannan** was the most effective. 15 ref.

3/3,AB/79 (Item 6 from file: 50)
DIALOG(R)File 50:CAB Abstracts

03058627 CAB Accession Number: 951301882
Isolation of mannan-utilizing bacteria and the culture conditions for mannanase production.
Mendoza, N. S.; Arai, M.; Kawaguchi, T.; Cubol, F. S.; Panerio, E. G.; Yoshida, T.; Joson, L. M.
Industrial Technology Development Institute, Department of Science and Technology, Manila, Philippines.
World Journal of Microbiology & Biotechnology vol. 10 (1): p.51-54

Publication Year: 1994
ISSN: 0959-3993 --
Language: English
Document Type: Journal article
A locally isolated str., Bacillus subtilis NM-39, was selected as an active mannan-utilizing bacterium based on high saccharifying activities on coconut residue and locust bean **gum galactomannan**. The opt. pH and temp. ranges for activity of the crude enzyme were 5.0 t 6.0 and 50 to 60 deg C, resp. The organism gave maz. mannanase activity when grown in liquid mineral salts medium containing 1% (w/v) each of coconut residue and soybean flour, as carbon and nitrogen sources, resp., at pH 7.0 and in aerobic growth for 28 h at 37 deg C. High saccharifying activity on coconut mannan was also observed. 7 ref.

3/3,AB/80 (Item 7 from file: 50)
DIALOG(R)File 50:CAB Abstracts

02885871 CAB Accession Number: 941607581
The carob tree. An exemplary **plant.**
Catarino, F.
Botanic Garden, University of Lisbon, Rua Escola Politecnica, 1294 Lisbon Cedex, Portugal.
Naturopa (No. 73): p.14-15
Publication Year: 1993
ISSN: 0250-7072 --
Language: English
Document Type: Journal article
A description of Ceratonia siliqua, its history, varieties, domestication and adaptation to the Mediterranean climate are given, together with information and research and prospects for future development. In spite of its tropical origin, carob is regarded as an example of perfect morphophysiological adaptation to Mediterranean conditions, and can withstand significantly higher temperatures and water shortage than other typical **plants** of the region. It is a valuable source of human and animal food, and even fuel as the fruits can accumulate up to 50% of their weight in sugar. However, the carob is currently mainly cultivated for its endosperm constituents, including galactomananes (**galactomannans**) which form the food additive carob or locust bean **gum**. This is used widely in industry as a stabilizer, and production of dry pods amounts to 400 000 t/year. Biotechnology has opened up other markets for carob products; tannins for industrial use can be extracted by enzymatic processes and xanthene (xanthine), an oil industry additive, can be produced extracellularly from carob sugars by Xanthomonas.

3/3,AB/81 (Item 8 from file: 50)
DIALOG(R)File 50:CAB Abstracts

02605829 CAB Accession Number: 921450780
Relationship between structure and function of dietary fibre: a comparative study of the effects of three **galactomannans** on cholesterol metabolism in the rat.
Evans, A. J.; Hood, R. L.; Oakenfull, D. G.; Sidhu, G. S.
CSIRO Division of Food Processing, Food Research Laboratory, PO Box 52, North Ryde, NSW 2113, Australia.
British Journal of Nutrition vol. 68 (1): p.217-229
Publication Year: 1992
ISSN: 0007-1145 --
Language: English
Document Type: Journal article
Male adult rats were fed on diets containing **galactomannans** 80

g/kg with different galactose (G):mannose (M) ratios/kg. The **galactomannans** were compared with purified cellulose (Solkaflok) and the rats were also fed on a basal diet free from fibre. All diets contained cholesterol (10 g/kg) and sodium cholate (2 g/kg). The 3 **galactomannans** were fenugreek **gum** (1G:1M), guar **gum** (1G:2M) and locust-bean **gum** (1G:4M). In comparison with the fibre-free and Solkaflok diets, all 3 **galactomannans** lowered the concentrations of cholesterol in liver and blood plasma. The **galactomannans** also decreased the rate of hepatic synthesis of cholesterol. Dietary **galactomannans** increased caecal volatile fatty acids, particularly propionic, increased the weight of the caecum and its contents and increased the amount of water in the faeces. The increase in propionic acid production was significantly related to a decrease in caecal pH, but not to changes in plasma cholesterol or hepatic cholesterol synthesis. These effects were significantly influenced by chemical composition and structure of the **galactomannan** ; they were most evident when the proportion of galactose in the **galactomannan** was highest (i.e., fenugreek **gum**). The 3 **galactomannans** also differed considerably in their effects on the viscosity of the digesta, but the **galactomannan** which gave the highest viscosity was least effective in lowering plasma cholesterol. A separate experiment with perfused loops of small intestine in vivo showed that the most effective **galactomannan**, fenugreek **gum** , had no direct effect on cholesterol absorption. 37 ref.

3/3,AB/82 (Item 9 from file: 50)
DIALOG(R)File 50:CAB Abstracts

02490874 CAB Accession Number: 920750216
Note on salinity induced changes in **galactomannan gum** content in endosperm of guar seeds.
Kumar, A.; Sharma, B. K.
Janta College of Pharmacy, Sonepat 124302, Haryana, India.
Advances in Plant Sciences vol. 2 (2): p.300-301
Publication Year: 1989
ISSN: 0970-3586 --
Language: English
Document Type: Journal article
Soil salinity levels of 4, 8, 12 or 16 dS/m gave **galactomannan gum** contents of 34.10-45.30% in the endosperm of Cyamopsis tetragonoloba seeds compared with 46.70-48.30% in the control. 4 ref.

3/3,AB/83 (Item 10 from file: 50)
DIALOG(R)File 50:CAB Abstracts

02048398 CAB Accession Number: 880719569
Enhancement of lectin-erythrocyte agglutination by gums.
Datta, P. K.; Basu, P. S.; Datta, T. K.
Dep. Process Biochem., Indian Inst. Chem. Biol., Calcutta 700 032, West Bengal, India.
Biochimica et Biophysica Acta, P (Protein Structure and Molecular Enzymology) vol. 957 (1): p.164-167
Publication Year: 1988 --
Language: English
Document Type: Journal article
The erythroagglutinating activity of purified Vicia faba lectin was enhanced in the presence of gums; **gum** guar (**galactomannan**) caused the greatest enhancement. Circular dichroism probe demonstrated 40-57% beta -conformation and 4-23% alpha -conformation of the lectin at pH 7.2 depending upon the analytical methods used. The beta -conformations of untreated and modified V. faba lectins were increased in the presence

of gums. The mixing of **gum** guar with lectin and with modified lectin, resp., led to the highest values of beta -conformational change in the protein molecule, thereby increasing the number of receptor sites of the lectin molecule. The enhancement of the activity of V. faba lectin in the presence of **gum** guar may be due to the conformational change of the protein molecule. 18 ref.

3/3,AB/84 (Item 11 from file: 50)
DIALOG(R)File 50:CAB Abstracts
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01757068 CAB Accession Number: 860790537
Processing, utilization and economics of mesquite pods as a raw material for the food industry.
Meyer, D.
Eidgenossische Technische Hochschule, 8092 Zurich, Switzerland.
Dissertation Abstracts International, C (European Abstracts) vol. 46 (3): p.921
Publication Year: 1985 --
Language: English
Document Type: Journal article
Using a specially developed milling process, mesquite (Prosopis sp.) pods were separated into a flour with up to 60% sucrose, a high-protein flour, a high-fibre product and a **galactomannan gum**. The possible applications of these fractions in the food industry are examined. Details are given of the design and operation of a mesquite processing **plant**.

3/3,AB/85 (Item 12 from file: 50)
DIALOG(R)File 50:CAB Abstracts
(c) 2001 CAB International. All rts. reserv.

01157368 CAB Accession Number: 810724407
Studies on the chemical properties of Crotalaria juncea Linn. seed **gum**.
Zhao, X.-Y.; Li, S.-Y.; Wu, Z.-X.; Zhao, Y.-W.; Deng, Z.-F.; Qu, H.
Acta Botanica Sinica vol. 23 (2): p.127-131
Publication Year: 1981
ISSN: 0577-7496 --
Language: Chinese Summary Language: english
Document Type: Journal article
Seed of C. juncea contained 26.9% endosperm of which > 70% was **galactomannan** with a galactose:mannose ratio of 1:2.3. The properties of the seed **gum** were investigated. 4 ref.

3/3,AB/86 (Item 13 from file: 50)
DIALOG(R)File 50:CAB Abstracts
(c) 2001 CAB International. All rts. reserv.

01020158 CAB Accession Number: 800714827
Analysis of the **galactomannan** gums in seeds of 24 legumes.
Li, X.; Fan, M.-J.; Feng, L.-B.; Shan, X.-Q.; Feng, Y.-H.
Inst. of Bot., Academia Sinica, Beijing, China.
Acta Botanica Sinica vol. 22 (3): p.302-304
Publication Year: 1980
ISSN: 0577-7496 --
Language: Chinese
Document Type: Journal article
Data are given for the 1000-seed wt. and the proportions of seed coat, endosperm and germ in seeds of 24 legumes including Leucaena glauca, (L. leucocephala) Crotalaria juncea, Cyamopsis tetragonoloba, Sesbania cannabina and Trigonella foenum-graecum. Contents of carbohydrate and

total insoluble subs[redacted]nces and the ratio of D-galacto[redacted]:D-mannose in the endosperm and the v[redacted]ocity of a 1% **gum** sol. from t[redacted] seeds were also determined. 5 ref.

3/3,AB/87 (Item 14 from file: 50)
DIALOG(R)File 50:CAB Abstracts
(c) 2001 CAB International. All rts. reserv.

00974149 CAB Accession Number: 802605701
Guar Cultivar Tests on the High Plains 1975 to 1977.
Finkner, R.
Plains Branch Agric. Exp. Sta., New Mexico State Univ., Clovis, New Mexico, USA.
New Mexico State University, Agricultural Experiment Station, Research Report
(No. 368): 2 pp.
Publication Year: 1978 --
Language: English
Document Type: Miscellaneous
Cv. of Cyamopsis tetragonoloba, a warm season legume that produces **galactomannan gum**, gave av. seed yields of 287, 451, 1772 lb/ac in 1975, '76 and '77, resp. The 1975 and 1976 growing season temp. were cooler than av. and the 1977 temp. were warmer than av. The results indicated that irrigated guar production did not have much potential for the high plains area of New Mexico. 4 ref.

3/3,AB/88 (Item 15 from file: 50)
DIALOG(R)File 50:CAB Abstracts
(c) 2001 CAB International. All rts. reserv.

00966237 CAB Accession Number: 802330867
A compositional study of pods of two varieties of mesquite (Prosopis glandulosa, P. velutina).
Becker, R.; Grosjean, O.-K. K.
USDA, Berkeley, California 94710, USA.
Journal of Agricultural and Food Chemistry vol. 28 (1): p.22-25
Publication Year: 1980
ISSN: 0021-8561 --
Language: English
Document Type: Journal article
The saccharide composition of the seeds and pericarp of mesquite (Prosopis glandulosa) and velvet mesquite (P. velutina) were determined using gas chromatrography and high-performance liquid chromatography. Sucrose was the major saccharide present, occurring mainly in the pericarp. Sucrose, raffinose, stachyose, inositol and **galactomannan gum** were present in the seeds. Autolysis at pH 5 and 6.5 for 18 h resulted in decreased sucrose, raffinose, stachyose, and **gum** viscosity, while inositol increased. Proximate analysis for protein, fibre, fat, and minerals gave generally expected results. It was concluded that alpha -galactosidase, beta -mannosidase, invertase and phytase are present in the seeds. The pericarp contained invertase activity. No evidence of cyanogenic glycosides was detected. From summary. 21 ref.

3/3,AB/89 (Item 16 from file: 50)
DIALOG(R)File 50:CAB Abstracts
(c) 2001 CAB International. All rts. reserv.

00334755 CAB Accession Number: 742307551
Weed control research in guar in Texas and Oklahoma 1961-72.
Smith, D. T.; Wiese, A. F.; Santelmann, P. W.
Texas Agric. Exp. Stn., College Station, 77843, USA.
Bulletin, Texas Agricultural Experiment Station

(No. B-1138): 12 pp
Publication Year: 1[redacted] --
Language: English
Document Type: Miscellaneous
Guar (Cyamopsis tetragonoloba) is a warm-season legume that produces **galactomannan gum** used as a binding agent in many industrial and foodstuff uses. Trials were carried out on loamy to sandy soils infested with Amaranthus spp., Digitaria ischaemum and Cenchrus spp. in W. Oklahoma and the Texas panhandle. Pre-sowing incorporated applications of trifluralin, nitralin, dinitramine and profluralin at about 1 lb/acre, safely controlled weeds in a crop sown in warm soil; chlorthal-dimethyl at 6-10 lb and EPTC 4 lb/acre were very effective against Amaranthus spp. and D. ischaemum in Oklahoma but failed to give consistent results in Texas. Pre-em. treatments which safely controlled all 3 weed species were chlorthal-dimethyl at 8 lb, linuron 1 lb, chloramben 2-4 lb, alachlor 1-2 lb, diphenamid 6 lb, nitralin 0.5 lb and diuron 0.5-1 lb/acre. Of the post-em. treatments, only MSMA at 2 lb/acre at the 7- to 10-leaf stage and bentazone 1 lb/acre at the 7- to 10-leaf or pod-filling stages did not reduce yields compared with cultivated controls. See also WA 24, 379. 7 ref.

3/3,AB/90 (Item 17 from file: 50)
DIALOG(R)File 50:CAB Abstracts

00182290 CAB Accession Number: 741415914
Edible gums and related substances.
Lawrence, A. A.
xii + 339pp.
Publication Year: 1973
Publisher: -- Park Ridge, N.J., Noyes Data Corporation., USA
ISBN: 0 8155 0511 6
Language: English
Document Type: Book
The detailed descriptive information is based on US patents since 1962 relating to the manufacture and application of edible gums and related substances. By indicating the information that is significant and eliminating legal jargon and juristic phraseology, the book gives a comercially oriented review of the manufacture and technology of gums with the underlying chemical and biochemical principles. The substances are grouped under **galactomannans**, arabinogalactan, gums from other land **plants** such as tragacanth and **gum** arabic, pectins, carrageenan, alginates, agar, carboxymethylcellulose and other cellulose ethers, xanthomonas hydrophilic colloid and other microbial polysaccharides, cyclodextrins and a miscellaneous group including starch gels. Most of the uses described are in human foods but a few are for feedingstuffs.n.

3/3,AB/91 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03791965 JICST ACCESSION NUMBER: 98A0979586 FILE SEGMENT: JICST-E
Gelation Mechanism as Induced by Mixing with Xanthan **Gum** and **Galactomannan**.
YUGUCHI YOSHIAKI (1); YASUNAGA HIDEKAZU (1); URAKAWA HIROSHI (1); KAJIWARA KANJI (1)
(1) Kyoto Inst. of Technol., Fac. of Eng. and Des.
Kobunshi Ronbunshu, **1998**, VOL.55,NO.10, PAGE.644-652, FIG.13, REF.15
JOURNAL NUMBER: G0122ABI ISSN NO: 0386-2186 CODEN: KBRBA
UNIVERSAL DECIMAL CLASSIFICATION: 544.232-14.03
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal

ARTICLE TYPE: Original [redacted]er
MEDIA TYPE: Printed Pub[redacted]ation
ABSTRACT: **Galactomannan** undergoes no gelation as a single component in aqueous solution, but can form gel synergistically when mixed with a bacterial polysaccharide xanthan composed of the celullose main chain with trisaccharide side-chains. This study attempts to characterize the structure of **galactomannan**-xanthan mixed-solution in the gel state by means of small-angle X-ray scattering(SAXS) and 1H NMR. The spectra obtained from the mixed-gel was found to be represented by the simple sum of the spectrum from each component. That is, gelation is not due to the formation of cross-linking domains composed of the complex of two polysaccharides. It is speculated that gel is formed by the suppression of molecular motion by mixing of different polysaccharides. (author abst.)

3/3,AB/92 (Item 2 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03629284 JICST ACCESSION NUMBER: 98A0489995 FILE SEGMENT: JICST-E
Gelation mechanism of locust bean **gum**-water system by freezing-thawing.
TANAKA R (1); HATAKEYAMA T (2); HATAKEYAMA H (3)
(1) Forestry and Forest Products Res. Inst., Ibaraki, JPN; (2) National Inst. Materials and Chemical Res., Ibaraki, JPN; (3) Fukui Inst. Technol., Fukui, JPN
Rep Prog Polym Phys Jpn, **1997**, VOL.40, PAGE.155-156, FIG.3, REF.2
JOURNAL NUMBER: F0113AAS ISSN NO: 0486-4476
UNIVERSAL DECIMAL CLASSIFICATION: 544.232-14.03
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Short Communication
MEDIA TYPE: Printed Publication

3/3,AB/93 (Item 3 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03610779 JICST ACCESSION NUMBER: 98A0534463 FILE SEGMENT: JICST-E
Current state and application techniques of thickener. Current state and application techniques of xanthan **gum**.
YAMATOYA KAZUHIKO (1)
(1) Dainippon Pharm. Co., Ltd.
Japan Fudo Saiensu(Japan Food Science), **1998**, VOL.37,NO.5, PAGE.52-58, FIG.8, TBL.3, REF.10
JOURNAL NUMBER: Z0639AAB ISSN NO: 0368-1122
UNIVERSAL DECIMAL CLASSIFICATION: 664.022.3
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/94 (Item 4 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03529172 JICST ACCESSION NUMBER: 98A0273294 FILE SEGMENT: JICST-E
Physiological Function of Soluble Edible Fiber "Sun Fiber".
TSUDA KEN (1)
(1) Taiyo Kagaku Co., Ltd., Cent. Res. Lab.
Shokuhin to Kaihatsu(Up-to-date Foodprocessing), **1998**, VOL.33,NO.2, PAGE.39-41, FIG.6, REF.11

JOURNAL NUMBER: Z0786ABF ISSN NO: 0911-3932
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/95 (Item 5 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03497793 JICST ACCESSION NUMBER: 98A0404844 FILE SEGMENT: JICST-E
Physical Properties and Texture of Mixed Solution of Polysaccharides.
OSAKO SANAE (1)
(1) Sagami Women's Univ.
Sagami Joshi Daigaku Kiyo. Shizenkei(Journal of Sagami Women's University), **1998**, VOL.61B(1997), PAGE.1-7, FIG.6, TBL.1, REF.21
JOURNAL NUMBER: F0982BAF ISSN NO: 0916-7676
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: Mixed solutions of .KAPPA.-carrageenan (c) and a **galactomannan gum**, xiz., locust bean (L) tara (T), and guar (G) in rations of 7:3, 1:1 and 3:7 (total concentration 0.01-0.5%), were examined for their rheogical praperties, and by a sensory evaluation. Viscosity and Hysteresis loop were measured, and the semantic differential method (SD) was employed. Addition of concentration on .KAPPA.-carrageenan solution resulted in the increase of reduces viscosity, strage modulus and loss modulus. The flow hysteresis curves were classified into two patterns and thixotropic parameter was calculated from the hysteresis loope respectively. The results of sensory evaluation demonstrates that three types of mixed solution had many similar tertural properties, the .KAPPA.-carrageenan solution was smooth, heavy and easy to swallow. (author abst.)

3/3,AB/96 (Item 6 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03214983 JICST ACCESSION NUMBER: 97A0648027 FILE SEGMENT: JICST-E
Latest trend of papermaking chemicals to improve quality and cost. Applications of **galactomannan** derivatives to papermaking.
IWAMURO YOSHIYUKI (1)
(1) Sansho Co., Ltd.
Kami Parupu Gijutsu Taimusu(Japanese Journal of Paper Technology), **1997**, VOL.40,NO.7, PAGE.26-28, TBL.4
JOURNAL NUMBER: Y0280AAM ISSN NO: 0453-1507
UNIVERSAL DECIMAL CLASSIFICATION: 676.2.021 547.458
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication
ABSTRACT: The original **plant** of **galactomannan** is guar **gum**, which is water-soluble natural polysaccharide composed of the mannose principal chain and galactose side-chain. The derivatives are as follows : 1) Carboxymethylation.2) Oxidation.3) Phosphorylation.4) Hydroxypropylation.5) The combination of 1) and 4).6) Cationization and others, and features are shown in the table. As applications to paper manufacturing, the following are expected : 1) Improvement of paper strength as an internal additive.2) Improvement of texture as an internal additive.3) Film formation as an external additive.

3/3,AB/97 (Item 7 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03157770 JICST ACCESSION NUMBER: 97A0241492 FILE SEGMENT: JICST-E
A Definition and Analytical Method of Fiber and Water-Soluble Fiber "Sunfiber".
INDEN TAKEHIKO (1)
(1) Taiyo Kagaku Co., Ltd.
Shokuhin to Kaihatsu(Up-to-date Foodprocessing), **1997**, VOL.32,NO.2, PAGE.35-37, FIG.2, TBL.2, REF.9
JOURNAL NUMBER: Z0786ABF ISSN NO: 0911-3932
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/98 (Item 8 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03063015 JICST ACCESSION NUMBER: 96A0973802 FILE SEGMENT: JICST-E
Studies on Thickening Polysaccharides from the Viewpoint of Cookery Science.
MURAYAMA ATSUKO (1)
(1) Kawamura Jr. Coll.
Nippon Kasei Gakkaishi(Journal of Home Economics of Japan), **1996**, VOL.47,NO.10, PAGE.959-971, FIG.22, TBL.1, REF.42
JOURNAL NUMBER: F0763ABW ISSN NO: 0913-5227 CODEN: NKGAE
UNIVERSAL DECIMAL CLASSIFICATION: 664.29 664.022.3
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication

3/3,AB/99 (Item 9 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03056128 JICST ACCESSION NUMBER: 97A0155372 FILE SEGMENT: JICST-E
Chemical Cross-Linked Gelation of Hydroxypropyl Guar (HPG) under Shear Flow.
LEE I (1); BAI C (1); WANG X (1); WANG N-X (1)
(1) Inst. Chemistry, Chinese Acad. Sci., Beijing, CHN
Polym J, **1997**, VOL.29,NO.1, PAGE.17-20, FIG.6, TBL.1, REF.12
JOURNAL NUMBER: F0612AAI ISSN NO: 0032-3896 CODEN: POLJB
UNIVERSAL DECIMAL CLASSIFICATION: 544.23-022.244
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: A chemical modified polysaccharide hydroxylpropyl giar (HPG) derived from the guar which is a **galactomannan** polysaccharide obtained from seed endosperm was used to investigate the chcmical cross-linked gelation. The backbone of HPG consists of 1,4 linked .BETA.-D-mannopyranosyl (4C1 chair conformation) residues to form a polymer chain with irregular and incomplete pendant 1,6 linked .ALPHA.-D-galactopyranosyl (4C1 chair conformation) side groups. A viscosity enhancement was found a borate-cross-linked HPG gels which have experienced a shear flow at the early stage of chemical

cross-linking. The enhancement of viscosity seems to correlate with a conformational change from a spherical shape to an elongated rod-like or/and an ellipsoidal shape at the early stage of chemical cross-linking processes. (author abst.)

3/3,AB/100 (Item 10 from file: 94)
DIALOG(R)File 94:JICST-EPlus

03025092 JICST ACCESSION NUMBER: 96A0802894 FILE SEGMENT: JICST-E
Structure-Property Relationships of Water-Soluble Polysaccharides.
BEMILLER J N (1)
(1) Purdue Univ., Indiana, USA
Oyo Toshitsu Kagaku(Journal of Applied Glycoscience), **1996**, VOL.43,NO.3, PAGE.377-384, FIG.2, REF.59
JOURNAL NUMBER: F0614ACI ISSN NO: 1340-3494
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Review article
MEDIA TYPE: Printed Publication

3/3,AB/101 (Item 11 from file: 94)
DIALOG(R)File 94:JICST-EPlus

02980419 JICST ACCESSION NUMBER: 96A0802887 FILE SEGMENT: JICST-E
Action and Some Properties of Multiple .BETA.-Mannanase Components from Bacillus sp. KK01.
HOSSAIN M Z (1); ABE J (1); HIZUKURI S (1)
(1) Kagoshima Univ., Kagoshima, JPN
Oyo Toshitsu Kagaku(Journal of Applied Glycoscience), **1996**, VOL.43,NO.3, PAGE.319-323, FIG.1, TBL.4, REF.25
JOURNAL NUMBER: F0614ACI ISSN NO: 1340-3494
UNIVERSAL DECIMAL CLASSIFICATION: 577.151 664.29
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: The properties of four enzyme components (F1,F2,F3 and F4) of Bacillus sp. KK01 were characterized. The Km and Vmax values of the four enzyme components were determined using copra mannan, locust bean **gum**, konjac mannan and guar bean **gum** as substrates. In the case of **galactomannan**, F1 and F2 showed higher Vmax/Km values than F3 and F4 components. The enzyme components F2, F3, and F4 were strongly inhibited by AgNO3 while F1 was moderately inhibited. F1 was found to be more strongly inhibited by CuCl2 than the rest of the components. The four enzyme components did not require metal ions for activity. F2, F3, and F4 components were strongly inhibited by N-bromosuccinimide while F1 was moderately inhibited. The four components rapidly hydrolyzed mannopentaose compared to mannotetraose. The F1, F2, and F3 rapidly hydrolyzed mannotetraose at a terminal linkage and moderately at the second linkage while F4 attaked only at a terminal linkage. On the other hand, all components rapidly hydrolyzed mannopentaose at the second linkage and moderately at a terminal linkage. (author abst.)

3/3,AB/102 (Item 12 from file: 94)
DIALOG(R)File 94:JICST-EPlus

02635765 JICST ACCESSION NUMBER: 95A0649171 FILE SEGMENT: JICST-E

guar **gum**.
Fain Kemikaru(Fine Chem[illegible]1), **1995**, VOL.24,NO.11, PAGE.2[illegible]9
JOURNAL NUMBER: Y0020AAM ISSN NO: 0913-6150
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Standard, specification
MEDIA TYPE: Printed Publication
ABSTRACT: **Galactomannan** is a natural polysaccharide which is obtained by separation, refining and grinding of leguminous **plant** seed albumen and is a compound consisting of a straight chain of mannose with side chain of galactose in the ratio 2:1.It is widely used in the fields of food, pet-food, textile industry, oil-mining, mine industry, and as binder for fish bait, etc. because of the properties such as high solubility in cold water, base-resistance, low cost, high viscosity by the synergistic effect with xanthan **gum**.

3/3,AB/103 (Item 13 from file: 94)
DIALOG(R)File 94:JICST-EPlus

02378528 JICST ACCESSION NUMBER: 95A0624610 FILE SEGMENT: JICST-E
Synergistic Interaction between Xanthan and **Galactomannan** Isolated from Leucaena leucocephala de WIT.
PAKDEE P (1); TAKO M (1); YOKOHARI T (1); KINJYO K (1); HONGO H (1); YAGA S (1)
(1) Univ. Ryukyus, Okinawa, JPN
Oyo Toshitsu Kagaku(Journal of Applied Glycoscience), **1995**, VOL.42,NO.2, PAGE.105-113, FIG.10, REF.35
JOURNAL NUMBER: F0614ACI ISSN NO: 1340-3494
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: The non-Newtonian behavior and dynamic viscoelasticity of a series of aqueous mixtures of xanthan and **galactomannan** isolated from Leucaena leucocephala de WIT were measured with a rheologiometer. At a concentration of 0.2% of total gums, gelation did not occur at room temperature, but at a low temperature (0.DEG.C.). A much stronger interaction was observed with mixtures containing deacetylated, deacylated, or native xanthan than with depyruvated xanthan. The maximum dynamic modulus was obtained when the ratio of xanthan to **galactomannan** was 2:1. The dynamic viscoelasticity parameters for mixtures with deacetylated and native xanthan decreased rapidly at temperatures above 20 and 15.DEG.C., respectively. It was concluded that the side chains of the **galactomannan** molecule prevent intermolecular interaction between xanthan and **galactomannan**. The results obtained support the interaction mechanism between xanthan and locust-bean **gum** previously proposed. (author abst.)

3/3,AB/104 (Item 14 from file: 94)
DIALOG(R)File 94:JICST-EPlus

02064129 JICST ACCESSION NUMBER: 94A0458673 FILE SEGMENT: JICST-E
Effects of Dietary Oat, Barley, and Guar Gums on Serum and Liver Lipid Concentrations in Diet-Induced Hypertriglyceridemic Rats.
ODA T (1); AOE S (1); IMANISHI S (2); KANAZAWA Y (2); SANADA H (2); AYANO Y (2)
(1) Snow Brand Milk Products Co. Ltd., Kawagoe, JPN; (2) Chiba Univ., Matsudo, JPN
J Nutr Sci Vitaminol, **1994**, VOL.40,NO.2, PAGE.213-217, TBL.3, REF.18

JOURNAL NUMBER: F0733ABB ISSN NO: 0301-4800 CODEN: JNSVA
UNIVERSAL DECIMAL CLASSIFICATION: 591.13:547.915 664.29
LANGUAGE: English COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Short Communication
MEDIA TYPE: Printed Publication
ABSTRACT: Effects of dietary oat, barley, and guar gums on serum and liver triglyceride or cholesterol concentrations were examined in diet-induced hypertriglyceridemic rats. Male Sprague-Dawley rats were fed a hypertriglyceridemic diet that contained 20% coconut oil, 17.5% fructose, 17.5% sucrose, and 5% cellulose at 4 weeks of age for 14 days. In the **gum**-supplemented diets, 2% cellulose was replaced by oat **gum**, barley **gum**, or guar **gum**.
Hypertriglyceridemia was observed in the control group, whereas serum cholesterol concentration was not increased. All of the gums lowered serum and liver cholesterol concentrations except barley **gum** which had no significant effect on liver cholesterol. Both oat and barley gums suppressed the elevation of serum and liver triglyceride concentrations but guar **gum** had no effect. (author abst.)

3/3,AB/105 (Item 15 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01773874 JICST ACCESSION NUMBER: 93A0462995 FILE SEGMENT: JICST-E
Dynamic Properties of Aqueous Locust Bean **Galactomannan** Solutions.
OBA MITSUO (1)
(1) Hakodate Technical College
Hakodate Kogyo Koto Senmon Gakko Kiyo(Research Reports. Hakodate Technical College), **1993**, NO.27, PAGE.85-91, FIG.8, TBL.2, REF.7
JOURNAL NUMBER: S0946AAP ISSN NO: 0286-5491
UNIVERSAL DECIMAL CLASSIFICATION: 544.23-14.03/.04
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication

3/3,AB/106 (Item 16 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01491977 JICST ACCESSION NUMBER: 91A0905737 FILE SEGMENT: JICST-E
Binding sites for D-mannose-specific interaction between xanthan and **galactomannan**.
TAKO MASAKUNI (1)
(1) Univ. of Ryukyus, College of Agriculture
Toshitsu Shinpojiumu Koen Yoshishu(Abstracts of Japanese Carbohydrate Symposium), **1991**, VOL.13th, PAGE.157-158, FIG.1, REF.3
JOURNAL NUMBER: L0157AAK
UNIVERSAL DECIMAL CLASSIFICATION: 581.192 547.458
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Conference Proceeding
ARTICLE TYPE: Short Communication
MEDIA TYPE: Printed Publication

3/3,AB/107 (Item 17 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01491920 JICST ACCESSION NUMBER: 91A0905673 FILE SEGMENT: JICST-E
Structure, functions and utilizations of some **plant** and microbial polysaccharides.

MISAKI AKIRA (1)
(1) Osaka City Univ.
Toshitsu Shinpojiumu Koen Yoshishu(Abstracts of Japanese Carbohydrate Symposium), **1991**, VOL.13th, PAGE.3-4, REF.7
JOURNAL NUMBER: L0157AAK
UNIVERSAL DECIMAL CLASSIFICATION: 577.114 581.192
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Conference Proceeding
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/108 (Item 18 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01243106 JICST ACCESSION NUMBER: 91A0227502 FILE SEGMENT: JICST-E
Effect of partially decomposed guar **gum** on high-cholesterol-fed rats and non-dietary fiber-fed rats.
TAKENO FUMIO (1); YAMADA HIROYUKI (1); SEKIYA KEIJI (1); OTSU KEIJI (1); FUJITANI BUICHI (2)
(1) Dainippon Pharmaceutical Co., Ltd.; (2) Dainippon Pharmaceutical Co., Ltd., Res. Lab.
Nippon Eiyo, Shokuryo Gakkaishi(Journal of Japanese Society of Nutrition and Food Science), **1990**, VOL.43,NO.6, PAGE.421-425, FIG.1, TBL.6, REF.7
JOURNAL NUMBER: F0624ABY ISSN NO: 0287-3516
UNIVERSAL DECIMAL CLASSIFICATION: 591.13:547.915
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: Guar **gum** partially decomposed by **galactomannanase** (PDGG) showed extremely low viscosity in comparison with untreated guar **gum**(GG). The dietary fiber(DF) content of PDGG was 83.5%, and that of GG was 83.0%, as measured by the Prosky method. The effect of PDGG was compared with that of GG in rats fed hypercholesterolemic diets containing either PDGG or GG at 5% for 21 days. PDGG suppressed the elevation of plasma cholesterol(Chol) and triglyceride(TG) levels. GG suppressed the elevation of Chol and TG in plasma and liver. Effects of PDGG and GG were examined in rats fed non-DF diets containing either PDGG or GG at the 5% for 18 days. Both PDGG and GG increased the degree of fecal moisture and the amount of feces excreted during an 18-h period. From these results, it was suggested that PDGG retained the ability to lower the plasma Chol level and increase the amount of feces, even though its viscosity was much lower than that of GG. (author abst.)

3/3,AB/109 (Item 19 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01161526 JICST ACCESSION NUMBER: 90A0621057 FILE SEGMENT: JICST-E
Water-soluble dietary fiber "Fiberon".
SHIBATA SEIICHI (1)
(1) Dainippon Pharmaceutical Co., Ltd.
Shokuhin Kako Gijutsu(Journal of the Japanese Society of Food Engineering), **1990**, VOL.10,NO.2, PAGE.110-115, FIG.7, TBL.3, REF.9
JOURNAL NUMBER: L0079AAL ISSN NO: 1343-7836
UNIVERSAL DECIMAL CLASSIFICATION: 664.022.3
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/110 (Item 20 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01084859 JICST ACCESSION NUMBER: 90A0598328 FILE SEGMENT: JICST-E
Dependence of steady-state viscosity on temperature and concentration of aqueous locust bean **galactomannan** solution.
OBA MITSUO (1)
(1) Hakodate Technical College
Hakodate Kogyo Koto Senmon Gakko Kiyo(Research Reports. Hakodate Technical College), **1990**, NO.24, PAGE.67-76, FIG.8, TBL.2, REF.18
JOURNAL NUMBER: S0946AAP ISSN NO: 0286-5491
UNIVERSAL DECIMAL CLASSIFICATION: 547.458 544.355-122
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication

3/3,AB/111 (Item 21 from file: 94)
DIALOG(R)File 94:JICST-EPlus

00882412 JICST ACCESSION NUMBER: 89A0241297 FILE SEGMENT: JICST-E
Thickening stabilizers in future. Refined **galactomannan** of low viscosity.
TODA YOSHIRO (1)
(1) Taiyokagaku
Gekkan Fudo Kemikaru(Technical Journal on Food Chemistry & Chemicals), **1989**, VOL.5,NO.3, PAGE.113-115, TBL.2, REF.6
JOURNAL NUMBER: X0600AAB ISSN NO: 0911-2286
UNIVERSAL DECIMAL CLASSIFICATION: 664.29
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

3/3,AB/112 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

13783133 PASCAL No.: 98-0496888
Purified guar **galactomannan** as an improved pharmaceutical excipient
GEBERT M S; FRIEND D R
CIBUS Pharmaceutical, Inc., Burlingame, California 94010, United States
Journal: Pharmaceutical development and technology, **1998**, 3 (3) 315-323
Language: English
The purpose of this study was to assess certain pharmaceutical attributes of guar **galactomannan** , a hydrocolloid polysaccharide obtained from the endosperm of the leguminous **plant** Cyamopsis tetragonolobus (L.), following purification using both literature procedures and new processes. Experiments were performed to measure viscosity, hydration rate, tablet hardness, and dissolution profiles ofguar **galactomannan** both before and after purification. The viscosity of an aqueous 1% purified **galactomannan** solution is typically 40-50% higher than its unpurified guar **galactomannan** precursor. The hydration rate of an aqueous 1% purified **galactomannan** solution increases by 100% after purification. These physicochemical changes resulted in improvements in pharmaceutical properties such as better stir speed independence in both tablet and capsule dissolution profiles and improved tablet hardness. For instance, time to 50% dissolution ofranitidine HClfrom capsules containing unpurified

guar **gum** was 0.4 and 1.8 [redacted] at 20 and 40 rpm, respectively using USP Apparatus II. Using the same amount of purified guar **gum** [redacted] the same conditions (20 and 40 rpm), these values were increased to 2.9 and 3.8 hr, respectively. These data demonstrate a reduced effect of changing agitation conditions and the need for less guar **gum** to sustain the release of a water-soluble drug. Tablet hardness of purified guar **gum** (particle size <75 mu m) was about 7 kP and the same unpurified guar **gum** of equal particle size and hydration gave a hardness of less than I kP.

3/3,AB/113 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal

13612342 PASCAL No.: 98-0317962
Preliminary evaluation of Leucaena leucocephala seed **gum** as a tablet binder
DEODHAR U P; PARADKAR A R; PUROHIT A P
Department of Pharmacognosy, Poona College of Pharmacy, Erandawana, Pune (M.S.) 411 038, India; Department of Pharmaceutics, Poona College of Pharmacy, Erandawana, Pune (M.S.) 411 038, India
Journal: Drug development and industrial pharmacy, **1998**, 24 (6) 577-582
Language: English
The seed **galactomannan** of Leucaena leucocephala Lam. de Wit var.K-8 (family Leguminosae), a natural polysaccharide, with properties comparable to guar **gum** , was evaluated as a pharmaceutical binder. Characterization was done using studies of compressibility, micromeritic, and mechanical properties of granules prepared by wet granulation and subsequent studies on compacts, both containing 5% w/w of binder. The seed **gum** was subsequently used as a binder with a badly compressible material, paracetamol, and studied likewise. The seed **gum** compared well with standard pharmaceutical binders (starch and polyvinyl pyrrolidone (PVP) K30), at least for properties studied herein.

3/3,AB/114 (Item 3 from file: 144)
DIALOG(R)File 144:Pascal

13309451 PASCAL No.: 98-0033922
Viscometric studies on xanthan and **galactomannan** systems
BRESOLIN T M B; SANDER P C; REICHER F; SIERAKOWSKI M R; RINAUDO M; GANTER J L M S
Department of Pharmacy, UFPR, CP 19046, CEP br81531-990 Curitiba, PR, Brazil; Department of Biochemistry, UFPR, CP 19046, CEP 81531-990 Curitiba, PR, Brazil; Department of Chemistry, UFPR, CP 19046, CEP 81531-990 Curitiba, PR, Brazil; Centre de Recherche sur les Macromolecules Vegetales (CERMA V), CNRS, associe a l'Universite Joseph Fourier, BP 53 X, 38041 Grenoble, France
Journal: Carbohydrate polymers, **1997**, 33 (2-3) 131-138
Language: English
The synergistic effect obtained by mixing xanthan and **galactomannans** from Brazilian seeds (Mimosa scabrella Bentham and Schizolobium parahybum (Vell) Blake), with mannose:galactose ratios of 1.1:1 and 3:1 respectively, were examined. Viscosity measurements were performed under different conditions. A strong interaction was observed with xanthan:**galactomannan** (X:G) from S. parahybum, in water at 1 and 2g/liter. For the mixture of xanthan:**galactomannan** from M. scabrella (X:G 3:1 2 g/liter, in water) despite the latter high galactose content, an increase in viscosity of 32% was observed over that calculated assuming no interaction. The results showed the formation of a gel-like structure with

hysteresis between increasing and decreasing shear rate. The interaction occurred mainly when the system was previously subjected to 80 Degree C in water, independent of the conformation of xanthan. The stronger interactions were obtained in aqueous systems. Since the main chain of the M. scabrella **galactomannan** is almost completely substituted, the synergistic effect must have an interaction mechanism different from that previously described by Dea and Morrison (1975), Dea et al. (1977), Morris et al. (1977), and Lundin and Hermansson (1995) in which xanthan interacts with **galactomannan** via the unsubstituted region of the latter.

3/3,AB/115 (Item 4 from file: 144)
DIALOG(R)File 144:Pascal

12580950 PASCAL No.: 96-0266200
Small and large deformation behaviour of mixtures of xanthan and enzyme modified **galactomannans**
KLOEK W; LUYTEN H; VAN VLIET T
Department of Food Science, Wageningen Agricultural University, PO Box 8129, 6700 EV Wageningen, Netherlands
Journal: Food hydrocolloids, **1996**, 10 (1) 123-129
Language: English
Small and large deformation properties of aqueous mixtures of xanthan with enzyme modified **galactomannans** at low ionic strength are discussed in terms of the theory of rubber elasticity and the structure of the **galactomannans** . The linear deformation region of the gels is small indicating that the deformation behaviour is dominated primarily by the rigid xanthan molecule. **Galactomannans** with a lower galactose content have a smaller region of linear behaviour.

3/3,AB/116 (Item 5 from file: 144)
DIALOG(R)File 144:Pascal

12292067 PASCAL No.: 95-0524577
Synergistic interactions between yellow mustard polysaccharides and galactomannas
CUI W; ESKIN N A M; BILIADERIS C G; MAZZA G
Univ. Manitoba, dep. food sci., Winnipeg MB R3T 2N2, Canada
Journal: Carbohydrate polymers, **1995**, 27 (2) 123-127
Language: English
Small strain oscillatory rheological tests were carried out to study the synergistic interactions between yellow mustard mucilage and locust bean **gum**. Synergistic interactions were observed for blends of locust bean **gum** and yellow mustard mucilage ranging in ratios from 1 :1 to 1 :9 at total polymer concentrations of 0.5 and 2.0% (w/w), respectively. The rheological data indicated that the water-soluble fraction of yellow mustard mucilage was responsible for the observed synergistic behavior in the blends. The major component of the water-soluble yellow mustard mucilage consists of a 1,4-linked beta -D-glucan backbone chain. This 1,4-linked beta -D-glucan backbone chain is believed to adopt a rigid-ordered structure that may be responsible for the synergistic interaction with **galactomannans**.

3/3,AB/117 (Item 6 from file: 144)
DIALOG(R)File 144:Pascal

11039447 PASCAL No.: 93-0548954
Effect of partially hydrolyzed guar **gum** on fecal output in human

volunteers
TAKAHASHI H; SUNG IL [redacted]G; HAYASHI C; KIM M; YAMANAKA [redacted]YAMAMOTO T
Taiyo Kagaku Co., Ltd, cent. res. inst., Yokkaichi, Mie 510, Japan
Journal: Nutrition research : (New York, NY), **1993**, 13 (6) 649-657
Language: English
Partially hydrolyzed guar **gum** (PHGG, average M. W. 20,000) digested by beta -D-mannanase was given as a beverage after every meal (36 g/3 times/day) to eight healthy men for 4 weeks. Diet with PHGG increased fecal weight and output frequency while lowering the pH of feces without an influence on fat, protein or mineral excretion. Among the fecal volatile fatty acids (VFA), only acetic acid significantly increased. Total serum cholesterol was reduced ($p<0.05$) by a diet with PHGG compared with the controlled diet period, while other serum lipid parameters were unaffected during the study. In conclusion, PHGG increased the bulking capacity without any influence on utilization of other nutrients

3/3,AB/118 (Item 7 from file: 144)
DIALOG(R)File 144:Pascal

09280690 PASCAL No.: 91-0071065
Influence of the acetyl substitutent on the interaction of xanthan with **plant** polysaccharides. I, Xanthan-locust bean **gum** systems
SHATWELL K P; SUTHERLAND I W; ROSS-MURPHY S B; DEA I C M
School agriculture, dep. microbiology, Edinburgh EH9 3JG, United Kingdom
Journal: Carbohydrate polymers, **1990**, 14 (1) 29-51
Language: English
A range of xanthans (Na SUP + salt form) with varying levels of acetyl and pyruvic acid substitution are prepared and their interaction with locust bean **gum** in de-ionized water are studied using oscillatory-shear measurements. The majority of the polymers interacted to form a strong thermoreversible-gel network, and the strength of the system was shown to be heavily dependent on the level of acetyl substitution

3/3,AB/119 (Item 8 from file: 144)
DIALOG(R)File 144:Pascal

08422095 PASCAL No.: 88-0422967
BREVET. Production of guar alpha-galactosidase by hosts transform by recombinant DNA methods
UNILEVER NV; UNILEVER PLC
Publication Date: **1988**-02-03
Patent: EP 0255153 A1 Patent Filing: 87201041.8, 1987-06-02
Convention: EP 86200975, 1986-06-03
Language: ENGLISH

3/3,AB/120 (Item 1 from file: 203)
DIALOG(R)File 203:AGRIS

02250678 AGRIS No: 1998-067083
[Manannase production from several mannanolytic molds on the coconut meal substrate] (Produksi mananase beberapa isolat kapang mananolitik pada substrat bungkil kelapa)
Iriani, N. (Balai Penelitian Ternak, Ciawi, Bogor (Indonesia)); Purwadaria, T.; Haryati, T.; Darma, J.
Conference Title: 2. Seminar Hasil Penelitian dan Pengembangan Bioteknologi
Conference Location and Year: Bogor (Indonesia), 6-7 Sep 1994
[Proceedings of the second seminar of biotechnology research result and development] (Prosiding seminar hasil penelitian dan pengembangan

bioteknologi kedua, Bogo[redacted] 6-7 September 1994)
Soetisna, U.; Tappa, [redacted] Sukara, E.; Sukiman, H.I.; Wi[redacted]stuti, Y.; Ermayanti, T.M.; Imelda, M.; Prayitno, N.R.; Loedin, I.H.S. (Eds.)
Pusat Penelitian dan Pengembangan Bioteknologi, Bogor (Indonesia)
Publisher: Puslitbang Bioteknologi , Bogor (Indonesia), 1995, p. 474-480
Language: Indonesian Summary Language: English, Indonesian

Manannase is produced by mannanolytic molds on the substrate containing high mannan. The enzyme breaks down mannan and **galactomannan** into mannosa and galactose. Nine mesophylic molds were isolated from oil palm and king palm seeds in the earlier experiment. They could produce mannanase in the substrate of **gum** locust bean. Coconut meal contains of 60 percent carbohydrate, which consists of 61 percent **galactomannan** 26 percent mannan and 13 percent cellulose. Therefore the production of mannanase on the substrate of coconut meal (1 percent) was studied in this research. Seven isolates: Verticillium sp 1, Penicillium variable, P. lanasoviride, P. rosoe-purpureum, Penicillium sp 3, Penicillium sp 5 and Eupenicillium javanicum were chosen for determination of their enzyme activities. The production of the enzyme was compared with the one produced by: Aspergillus niger BPT and A. niger NRRL 337. The results show that E. javanicum produces the highest mannanase activity and specific activity (95,71 U/ml and 493,2 U/mg protein), while the highest protein content is produced by P. roseopurpureum (293.3 micron/ml). The saccharification activity towards coconut meal was also determined to find out the ability of mannanase to hydrolyse mannan from coconut meal. The best incubation time of saccharification activity was determined from one to twenty-four hours. The result shows that the highest saccharification activity comes from one hour incubation and is resulted from P. roseo-purpureum (5.07 U/ml), while the highest specific incubation activity is resulted from Penicillium sp3 (28.53 U/mg protein).

Enzim mannanase dapat diproduksi oleh kapang mananolitik pada substrat kaya manan. Enzim tersebut dapat memecah senyawa manan dan galaktomanan menjadi manosa dan galaktosa. Penelitian sebelumnya telah mengisolasi sembilan kapang mesofilik dari biji palem raja dan biji sawit. Isolat tersebut dapat memproduksi mannase pada "**gum** locust bean". Bungkil kelapa mengandung 60 percent karbohidrat yang terdiri 61 persen galaktomanan, 26 persen mannan dan 13 persen selulosa. Karena itu pada percobaan ini dipelajari produksi enzim pada bungkil kelapa (1 persen). Tujuh jenis isolat dipilih untuk ditentukan aktivitasnya yaitu : Verticillium sp 1, Penicillium variable, P. lanasoviride, P. roseo-purpureum, Penicillium sp 3, sp 5 dan Aupenicillium javanicum. Produksi enzim dibandingkan dengan Aspergillus niger BPT dan NRRL 337. Hasil menunjukkan bahwa E. javanicum memproduksi aktivitas mananase dan spesifik yang paling tinggi (95,71 U/ml dan 493,2 U/mg protein), sedangkan kadar protein tertinggi diproduksi dari P. roseo-purpureum (293,3 micron/ml). Untuk melihat kemampuan mananase dalam memecah manan yang terkandung dalam bungkil kelapa, ditentukan pula aktifitas sakarifikasi terhadap bungkil kelapa. Penentuan masa inkubasi untuk analisis sakarifikasi antara 1 sampai 24 jam, menunjukkan bahwa kecepatan aktivitas sakarifikasi tertinggi pada masa inkubasi 1 jam. Hasil tertinggi aktivitas sakarifikasi pada masa inkubasi tersebut dihasilkan oleh P. roseo-purpureum (5,07 U/ml), sedangkan aktivitas spesifik sakarifikasi tertinggi dihasilkan enzim Penicillium sp. 3 (28,53 U/mg protein).

3/3,AB/121 (Item 2 from file: 203)
DIALOG(R)File 203:AGRIS

01694401 AGRIS No: 93-070851
Purification and characterization of mannanase from Pseudomonas sp
Parayno, D.A.
Philippines Univ., Los Banos, College, Laguna (Philippines)
Thesis Degree: Thesis (M.S. in Biochemistry)
Publisher: , College, Laguna (Philippines), Oct 1992, 66 leaves
Language: English Summary Language: English

Mannanase enzyme was produced by a local isolate of Pseudomonas sp. in batch cultures using coconut endosperm residue "copra" as carbon substrate. The optimal pH for enzyme production was 6.0 and enzyme activity of the culture suspension peaked after three days. Sequential column chromatography through DEAE - cellulose and Sephadex G-75 gave an enzyme recovery of 58.1% and 2.3 fold purification. The enzyme was electrophoretically homogenous, consisted of only one protein subunit and had a molecular weight of approximately 20 kD by SDS-PAGE. The optimum pH and temperature ranges for mannanase were 5.0-6.5 and 45-50 deg C, respectively. The purified mannanase was stable for 4 months at 4 deg C and pH 7.5. The Km and Vm values were 0.30 mg/ml and 0.027 mg/ml/min, respectively, for coconut **galactomannan**; the corresponding values were 0.78 mg/ml and 0.017 mg/ml/min for locust bean **gum galactomannan**. Enzymatic hydrolysis of the latter **galactomannan** gave mannose and manno-oligosaccharides as major products.

3/3,AB/122 (Item 3 from file: 203)
DIALOG(R)File 203:AGRIS

01569961 AGRIS No: 92-008777
New stabilising systems using **galactomannans**
Sprenger, M. (Meyhall Chemical AG, 8280 Kreuzlingen (Switzerland))
Journal: Dairy Industries International, 1990, v. 55(1) p. 19-20
Language: English

3/3,AB/123 (Item 4 from file: 203)
DIALOG(R)File 203:AGRIS

01531778 AGRIS No: 91-067261
[Extrusion cooking of starch with hydrocolloids] (Kochextrusion von Staerke mit Hydrokolloiden)
Kuhn, M. (Univ. Hohenheim, Stuttgart (Germany). Fachgebiet Getreidetechnologie); Elsner, G.; Graeber, S.
Journal: Starch - Staerke, 1989, v. 41(12) p. 467-471
Language: German Summary Language: German, English
Bei der Kochextrusion von Maisstaerke mit den Hydrokolloiden Xanthan, Gummi arabicum, Johannisbrotkernmehl und Carrageen zeigte das System aus Maisstaerke mit Xanthan bei Xanthan-Anteilen von 5 bis 30 % herausragende Eigenschaften. Bisher war zwar in der Loesung eine Wechselwirkung von Xanthan mit **Galactomannan** ueber die Beta-1,4- verknuepfte Polysaccharid-Hauptketten beschrieben worden. Jetzt zeigte sich, dass auch unter den Bedingungen der Kochextrusion eine kooperative Verknuepfung der Beta-1,4-D-Glucanketten des Xanthans mit den Alpha-1,4-D-Glucanketten der Staerke erfolgen kann. Hinweise daraufergaben Messungen des Drucks und des Drehmoments waehrend der Kochextrusion in Abhaengigkeit vom Xanthangehalt. Weiterhin zeigten Kochextrudate aus Maisstaerke mit Xanthan ein auffallend hohes Wasserbindevermoegen und interessantes Viskositaetsverhalten, so dass derartige Produkte die Funktion einer neuen Klasse von Hydrokolloiden erfuellen. [S-90-03965].

3/3,AB/124 (Item 1 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

09129790 Genuine Article#: Q8133 Number of References: 26
Title: HETEROGENEITY AND STRUCTURAL INVESTIGATION OF **GALACTOMANNANS** ISOLATED FROM THE SEEDS OF CASSIA-SERICEA
Author(s): MURALIKRISHNA G; THARANATHAN RN; BHAT UR
Corporate Source: CENT FOOD TECHNOL RES INST,DEPT FOOD CHEM,BIOCHEM

SECT/MYSORE 570013/KARNATAKA/INDIA/; MAX PLANCK INST IMMUNBIOL/D-7800 FREIBURG//FED REP GE
Journal: CARBOHYDRATE RESEARCH, **1988**, V182, N1, P119-125
Language: ENGLISH Document Type: ARTICLE

3/3,AB/125 (Item 2 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

09005434 Genuine Article#: P8774 Number of References: 12
Title: STRUCTURAL STUDIES OF AN ACIDIC **GALACTOMANNAN** FROM THE REFERENCE STRAIN FOR SERRATIA-MARCESCENS SEROGROUP-O4
Author(s): OXLEY D; WILKINSON SG
Corporate Source: UNIV HULL,DEPT CHEM/HULL HU6 7RX/N HUMBERSIDE/ENGLAND/
Journal: CARBOHYDRATE RESEARCH, **1988**, V179, AUG, P341-348
Language: ENGLISH Document Type: ARTICLE

3/3,AB/126 (Item 3 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

08932335 Genuine Article#: P4144 Number of References: 17
Title: IDENTIFICATION OF PARTIALLY METHYLATED METHYL GLYCOSIDES BY GAS-CHROMATOGRAPHY MASS-SPECTROMETRY OF TRIMETHYLSILYL DERIVATIVES - APPLICATION TO MYCOBACTERIAL GLYCOLIPID ANTIGEN-ANALYSIS
Author(s): RIVIERE M; FOURNIE JJ; MONSARRAT B; PUZO G
Corporate Source: CNRS,CTR RECH BIOCHIM & GENET CELLULAIRES,118 ROUTE NARBONNE/F-31062 TOULOUSE//FRANCE/; CNRS,PHARMACOL LAB/F-31062 TOULOUSE//FRANCE/
Journal: JOURNAL OF CHROMATOGRAPHY, **1988**, V445, N1, P87-95
Language: ENGLISH Document Type: ARTICLE

3/3,AB/127 (Item 4 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

08643567 Genuine Article#: M4125 Number of References: 33
Title: A D-GALACTO-D-MANNAN FROM MELILOTUS-OFFICINALIS SEEDS
Author(s): GUPTA AK; GRASDALEN H
Corporate Source: SHIVAJI UNIV,DEPT CHEM/KOLHAPUR 416004/MAHARASHTRA/INDIA/ ; UNIV TRONDHEIM,INST BIOTECHNOL/N-7034 TRONDHEIM//NORWAY/
Journal: CARBOHYDRATE RESEARCH, **1988**, V173, N1, P159-168
Language: ENGLISH Document Type: NOTE

3/3,AB/128 (Item 5 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

08376556 Genuine Article#: K3585 Number of References: 17
Title: N-ALKYLATION AND O-ALKYLATION OF GLYCOCONJUGATES AND POLYSACCHARIDES BY SOLID BASE IN DIMETHYL SULFOXIDE/ALKYL IODIDE
Author(s): GUNNARSSON A
Corporate Source: UNIV LUND,DEPT CARBOHYDRATE CHEM,SOLVEGATAN 41-111/S-22370 LUND//SWEDEN/
Journal: GLYCOCONJUGATE JOURNAL, **1987**, V4, N3, P239-245
Language: ENGLISH Document Type: ARTICLE

3/3,AB/129 (Item 6 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

08106895 Genuine Article#: H4193 Number of References: 26
Title: STRUCTURE OF A **GALACTOMANNAN** FROM CASSIA-ALATA SEED
Author(s): GUPTA DS; JANN B; BAJPAI KS; SHARMA SC
Corporate Source: PPN COLL,DEPT CHEM/KANPUR/UTTAR PRADESH/INDIA/; DS COLL,DEPT CHEM/ALIGARH/UTTAR PRADESH/INDIA/
Journal: CARBOHYDRATE RESEARCH, **1987**, V162, N2, P271-276
Language: ENGLISH Document Type: ARTICLE

3/3,AB/130 (Item 7 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

07886184 Genuine Article#: F9598 Number of References: 51
Title: INVESTIGATION OF THE STRUCTURE OF A HETEROXYLAN FROM THE OUTER PERICARP (BEESWING BRAN) OF WHEAT KERNEL
Author(s): BRILLOUET JM; JOSELEAU JP
Corporate Source: INRA,CTR RECH AGRO ALIMENT,BIOCHIM & TECHNOL GLUCIDES LAB/F-44072 NANTES//FRANCE/; CTR RECH MACROMOLEC VEGETAL,CNRS/F-38402 ST MARTIN DHERES//FRANCE/
Journal: CARBOHYDRATE RESEARCH, **1987**, V159, N1, P109-126
Language: ENGLISH Document Type: ARTICLE

3/3,AB/131 (Item 8 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

07694340 Genuine Article#: F1989 Number of References: 20
Title: TECHNIQUES IN THE SHOOT MULTIPLICATION OF THE LEGUMINOUS TREE PROSOPIS-ALBA CLONE B2V50
Author(s): TABONE TJ; FELKER P; BINGHAM RL; REYES I; LOUGHREY S
Corporate Source: TEXAS A&I UNIV,COLL AGR,CAESAR KLEBERG WILDLIFERES INST/KINGSVILLE//TX/78363
Journal: FOREST ECOLOGY AND MANAGEMENT, **1986**, V16, NSI, P191-200
Language: ENGLISH Document Type: ARTICLE

3/3,AB/132 (Item 9 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

07694339 Genuine Article#: F1989 Number of References: 18
Title: THE INFLUENCE OF STOCK **PLANT** FERTILIZATION ON TISSUE CONCENTRATIONS OF N, P AND CARBOHYDRATES AND THE ROOTING OF PROSOPIS-ALBA CUTTINGS
Author(s): DESOUZA SM; FELKER P
Corporate Source: TEXAS A&I UNIV,CAESAR KLEBERG WILDLIFE RES INST/KINGSVILLE//TX/78363
Journal: FOREST ECOLOGY AND MANAGEMENT, **1986**, V16, NSI, P181-190
Language: ENGLISH Document Type: ARTICLE

3/3,AB/133 (Item 10 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

07569993 Genuine Article#: E3319 Number of References: 38
Title: STRUCTURE OF THE D-GALACTO-D-MANNAN ISOLATED FROM THE SEEDS OF MELILOTUS-INDICA ALL
Author(s): GUPTA AK; BOSE S
Corporate Source: NATL SUGAR INST,DEPT ORGAN CHEM/KANPUR 208017//INDIA/
Journal: CARBOHYDRATE RESEARCH, **1986**, V153, N1, P69-77
Language: ENGLISH Document Type: ARTICLE

3/3,AB/134 (Item 11 from file: 434)
DIALOG(R)File 434:SciSearch(R) Cited Ref Sci

07256198 Genuine Article#: C0461 Number of References: 21
Title: GC/MS-ANALYSIS OF METHYLATED IRIDOID GLYCOSIDES
Author(s): FRANKE A; RIMPLER H
Corporate Source: UNIV FREIBURG,INST PHARMAZEUT BIOL,SCHANZLESTR 1/D-7800 FREIBURG//FED REP GER/
Journal: PLANTA MEDICA, **1986**, N2, P89-95